

6.0 PHYSICAL AND NATURAL ENVIRONMENTAL IMPACTS

This Chapter describes the natural resources of the project area and potential impacts on those resources that could result from the No-Build and Build Alternatives. Where relevant, potential measures to mitigate identified impacts are also discussed. Topics addressed in this Chapter include: air quality; noise; prime and statewide important farmland; contaminated properties; vegetation, wildlife, and fisheries; state/federal threatened and endangered species; visual impact; parks, trails, recreational areas and natural areas/Section 4(f)/Section 6(f) lands; geology/soils; and wild and scenic rivers and canoe/boating routes.

6.1 AIR QUALITY

6.1.1 Regulatory Overview

The Clean Air Act of 1970 established six “criteria pollutants” and required the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for these pollutants. The Intermodal Surface Transportation Efficiency Act of 1991 states that a federal agency cannot approve or fund a transportation project unless it conforms to the State Implementation Plan (SIP). The SIP contains procedures to monitor, control, maintain, and enforce compliance with the NAAQS. To conform to the SIP, the proposed project can not cause or contribute to a new violation of any NAAQS, increase the frequency or severity of any existing NAAQS violation, or delay the timely attainment of any NAAQS or any required interim emissions reductions or other milestones.

If an area does not meet the air quality standard for one of the six criteria pollutants, it may be designated by the EPA as a non-attainment area. If an area is designated as non-attainment, its attainment status can be regained by fulfilling specific requirements showing that standards are no longer exceeded. Minnesota does not currently have any non-attainment areas. However, the Twin Cities metropolitan area (including Wright County) was recently (in 1999) reclassified from non-attainment to attainment status for carbon monoxide (CO) and it is considered a maintenance area. The SIP includes information on how this maintenance area will continue to meet federal air quality standards.

The EPA issued final rules on transportation conformity (amended as 40 CFR 93) in 1999 which describe the methods required to demonstrate SIP compliance for transportation projects. These guidelines indicate that non-exempt transportation projects such as the proposed I-94/TH 10 Interregional Connection project may need to be included in a regional emissions analysis to demonstrate that the project would not increase regional CO emissions and would not increase the frequency or severity of existing violations. The regional analysis must be part of the metropolitan planning organization's long-range plan and the three-year Transportation Improvement Program (TIP).

Of the four Build Alternatives being studied, the segments of Alternatives B, C and D that lie south of the Mississippi River fall within Wright County. Because no specific funding has been allocated for this project at this time, it is not in the state's current TIP. As planning and funding for this project progresses, it will need to be included in future versions of the TIP. After this project is included in the TIP, it will be included in a regional analysis of emissions performed by the Metropolitan Council. This analysis will show whether emissions are below the EPA-established emissions budget for the region and whether this project interferes with implementation of any transportation control measures included in the SIP. As a means of estimating project specific potential air quality impacts for this DEIS, a free-flow analysis for CO was performed, as described in the sections that follow.

6.1.2 Affected Environment

The six criteria pollutants established by the Clean Air Act of 1970 are: particulates, lead, ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide. Each of these pollutants along with a brief description of its relevance to the project are listed below.

Particulate Matter: Particulate matter is used to describe a mixture of solid particles and liquid droplets found in the air. Motor vehicles emit small amounts of particulate matter, with the majority of these particulates being deposited within the roadway right of way. According to the U.S. Department of Energy's *Transportation Energy Data Book*, traffic contributes a small percent of total ambient particulate concentrations when compared with the percent of particulates contributed to ambient air by stationary sources. Particulate matter modeling was not conducted for this project since the Build Alternatives being studied are not anticipated to substantially increase particulate concentrations within the project area.

Lead: The State of Minnesota is designated by the EPA as an attainment area for lead. Lead emissions have steadily declined over the past twenty years as the percent of vehicles using leaded fuel has been virtually eradicated. Because of these factors, modeling for lead was not performed for this project.

Ozone/Nitrogen Oxides: Transportation sources emit nitrogen oxides and volatile organic compounds (VOCs), which are precursors of ozone. Nitrogen oxides and VOC concentrations are affected primarily by the total number of vehicle miles traveled in a given area and by meteorological conditions. Ozone is primarily a concern associated with large urban areas and is addressed on a regional basis.

The MPCA has determined that the contribution of a single roadway project to the total concentrations of these pollutants on an area-wide basis is negligible. Therefore, area-wide ozone modeling was not conducted for this project area.

Sulfur dioxide: Sulfur dioxide is not a pollutant associated with vehicles and is therefore not a pollutant of concern for this project.

Carbon Monoxide: Carbon monoxide is the traffic-related pollutant of most concern in urban areas. Concentrations of CO are generally highest at intersections with poor levels of service and, consequently, more idling vehicles. The EPA has approved a screening method to

determine which intersections need hot-spot analysis. Mn/DOT demonstrates, by the results of the screening procedure, that a particular intersection does or does not require hot-spot analysis. This screening method compares volumes at subject intersections to the busiest intersections in the Twin Cities metropolitan area where CO standards remain below standards. The EPA has established federal standards (or maximum permissible concentrations) for CO of 35 parts per million (ppm) for a 1-hour period (average concentration) and 9 ppm for an 8-hour period. The Minnesota Pollution Control Agency (MPCA) has established a stricter 1-hour standard of 30 ppm.

Federal attainment status for CO is contingent upon the implementation of measures to assure that CO concentrations remain below standards. The contingency stipulates that future CO concentrations must be modeled for proposed transportation projects. In compliance with this stipulation, air quality analysis of “worst-case” conditions was performed for this project to estimate the effect of project alternatives on future CO concentrations at key freeway segments in the project area. MPCA staff was consulted in the development of the scope, methods, and procedures used in performing the CO analysis for this project as described below.

Forecast 2040 traffic volumes along each of the four Build Alternatives were basically the same (on the scale given the level of detail of inputs into CO modeling); thus the CO emissions would be expected to be the same along a free-flow segment of any of the alignments. Carbon monoxide emissions from vehicles traveling through the City of Clearwater along Alternative B would affect the most residences and businesses compared to the isolated sites along the other Build Alternatives. Therefore, the segment of Alternative B within the City of Clearwater was selected as the worst-case location for this project.

6.1.3 Environmental Consequences

The effects of the proposed project on air quality were examined through analysis of the modeled impacts on CO concentrations for year 2040 conditions (approximately 20 years after anticipated project completion). Air quality analysis requires knowledge of background pollutant concentrations. By definition, the background CO concentration in any particular area is the level that exists independent of direct contributions from nearby traffic. The background concentrations are added to modeling results to yield projected CO concentrations at specific receptor sites.

Based upon consultation with the MPCA, 2003 default maximum background concentrations (3.0 ppm and 2.0 ppm for 1-hour and 8-hours, respectively) were used for this analysis. For purposes of the 2040 analysis, the background concentrations were adjusted for background traffic growth (factor for growth between 2000 and 2040) and vehicle emissions (factor for changes in vehicle emissions predicted by the EPA model MOBILE5A resulting from emission control improvements). The MOBILE5A model only produces emission factors up to the year 2020. Based on guidance from the MPCA, it is assumed that the projected trend of decreasing emission rates per vehicle-mile and vehicle-hour will continue, and use of MOBILE5A 2020 factors, thus, would represent conservative conditions for 2040. The results of these adjustments yield worst-case background concentrations that are likely to overestimate future (year 2040) concentrations. These background CO concentrations are summarized in Table 6.1.1.

TABLE 6.1.1
BACKGROUND CARBON MONOXIDE CONCENTRATIONS

Factor	2040	
	1-Hour	8-Hour
2003 Default Concentration (ppm)	3.00	2.00
Background Traffic Volume Adjustment Factor	2.49	2.49
Emission Adjustment Factor	0.92	0.92
Worst-Case Background Concentration (ppm)	6.90	4.60
State Standard (ppm)	30	9
Federal Standard (ppm)	35	9

ppm = parts per million

6.1.3.1 Carbon Monoxide Analysis

Carbon monoxide concentrations for Build conditions were calculated for year 2040 Alternative B free-flow conditions within the City of Clearwater. This area is expected to have worst-case CO concentrations due to the density of receptor sites (i.e., residential yards and commercial parking lots) and their proximity to the roadway. All other sites along the other Build Alternatives would be expected to have lower CO levels because the alignments occur in areas of less dense development where the receptors would be farther from the roadway. MPCA staff reviewed and concurred with the area selected for analysis.

Forecast traffic data (year 2040) and preliminary design layouts for Alternative B were used to model predicted Build CO concentrations. Carbon monoxide modeling was performed using the most current versions of EPA CO emission and dispersion modeling software. All methods and procedures used in the air quality analyses are approved or industry standard analyses.

Micro-scale analyses were performed for CO concentrations at the worst-case location identified above (i.e., Alternative B) for peak traffic conditions. Carbon monoxide concentrations were predicted using forecast traffic volumes and proposed speed limits. Emission levels were calculated with the EPA MOBILE5A model and dispersion modeling using the EPA model CAL3QHC. The modeling assumptions used in this analysis are presented in Table 6.1.2

Worst-case CO concentrations at spot receptor sites along Build Alternative B (see Figure 6.1 for locations) were calculated by the model. The modeling receptor locations used in this analysis are presented on Figure 6.1. These spots represent the nearest locations to the roadway where prolonged human activity is likely to occur. Modeled CO concentrations are reported at each spot individually along with the corresponding worst-case wind direction. Results of the CO modeling are presented in Table 6.1.3. The results are compared to federal and state standards for CO, presented at the bottom of the table.

TABLE 6.1.2
CARBON MONOXIDE MODELING ASSUMPTIONS

Analysis Year:	2040
Cold Start Percentage:	20.6 percent for all traffic
Hot Start Percentage:	27.3 percent for all traffic
Cruising Speed:	Posted Speed Limits
Traffic Mix:	National Default Values
Wind Speed:	3.3 feet/second
Temperature:	20 degrees Fahrenheit
Surface Roughness ⁽¹⁾ :	42.5 inches
Stability Class ⁽²⁾ :	D
Inspection Maintenance:	No
Oxygenated Fuel:	Yes
8-Hour Persistence Factor ⁽³⁾ :	0.7
Wind Direction:	36 directions at 10 degree increments

Notes:

The Surface Roughness, Stability Class and 8-Hour Persistence Factor are discussed in *Guidelines for Air Quality Maintenance Planning and Analysis Volume 9 (Revised): Evaluating Indirect Sources*, U.S. EPA, 1978, and are summarized below.

- (1) Surface Roughness indicates the initial ground level turbulence into which the exhaust plume will be released. Generally, the higher the roughness, the lower the concentration. The number used here is conservatively low (results in a worst-case).
- (2) Stability Class characterizes the mixing potential of the atmosphere. Stability Class D is used as a worst-case.
- (3) The 8-Hour Persistence Factor is used to determine 8-hour localized CO contributions, and takes into account fluctuating wind directions, temperature and traffic, which are more likely to occur over eight hours than during one hour. The factor is multiplied by the 1-hour modeling result.

TABLE 6.1.3
CARBON MONOXIDE MODELING RESULTS – ALTERNATIVE B

Receptor	2040 Build		
	One-Hour Average Total ⁽¹⁾ Concentration	Eight-Hour Average Total ⁽¹⁾ Concentration	Wind Angle
1	8.0	5.4	50
2	8.1	5.4	50
3	8.1	5.4	40
4	7.2	4.8	80
5	8.3	5.6	80
6	8.4	5.7	230
State Standard	30	9	
Federal Standard	35	9	

Note: All concentrations are in parts-per-million (ppm).

- (1) Total concentrations include background (6.9 ppm and 4.6 ppm for 1-hour and 8-hour, respectively) and modeled CO concentrations.

FIGURE 6.1 B&W 8-1/2 X 11

6.1.3.2 Results and Discussion

The worst-case CO levels (8.4 ppm and 5.7 ppm for 1-hour and 8-hour concentrations, respectively) are predicted at Receptor 6, northwest of Alternative B near the Mississippi River. These predicted concentrations are below both state and federal standards. These results were obtained using worst-case background and modeling assumptions for the alternative that has the densest amount of receptors adjacent to the proposed alignment – Alternative B. Based on the predicted concentration levels and the fact that a worst-case scenario for all the Build Alternatives was analyzed, air quality is not expected to be a concern for any of the potential Build Alternatives.

Year 2040 CO levels were not modeled for the No-Build condition. The I-94/TH 24 interchange ramp signals and TH 24/CSAH 75 intersection in downtown Clearwater would remain in this scenario. Without major improvements, these intersections would be congested by the year 2040, resulting in substantial traffic delays and idling vehicles waiting at intersections. Idling vehicles waiting at intersections have higher CO emission factors than vehicles traveling at free-flow speeds. Therefore, the CO levels would be expected to be higher for No-Build (many idling vehicles) conditions than for Build (free-flow) conditions.

6.1.4 Mitigation

No specific long-range mitigation measures for this project are necessary to maintain air quality standards because projected CO levels for the worst-case conditions (Alternative B in Clearwater) are below state and federal standards. Temporary construction-related impacts on air quality are discussed in Chapter 9 (Construction Impacts).

6.2 NOISE

6.2.1 Affected Environment

6.2.1.1 Traffic Noise

This section provides an analysis of the noise impacts that would result from each of the project alternatives (Build Alternatives A, B, C, D and No-Build). A detailed noise analysis was completed to assess existing traffic noise levels in the project area and to determine what effect the five potential alternatives would have on future noise levels. The Build Alternatives would create new traffic noise sources in different areas of the study area and could change traffic volumes along existing roadways. Increases in traffic can result in increased noise levels, which can be perceived as an annoyance by adjacent residents.

The noise analysis consisted of monitoring existing noise levels at residential receptor sites and predicting future noise levels using computer modeling. Aside from the cities of Clearwater and Clear Lake, the proposed project is located in a rural setting. Residences within the study area are mainly concentrated within the two cities; however, scattered residences are located throughout the project corridor between TH 10 and I-94. There are two designated canoe access

campsites within the Mississippi Scenic Riverway in the study area. One is located on an island located over a mile downstream of Alternative A and was not included in the noise study. The other site is located on Oak Island, approximately one-half mile upstream of Alternative D and is included in the noise analysis. There are several existing roadways in the study area with traffic volumes high enough to be considered sources of traffic noise, including I-94, TH 10, TH 24, TH 25, CSAH 75 and CSAH 8.

6.2.1.2 Noise Analysis

Noise is defined as any unwanted sound. Traffic is a common source of noise near high-volume roadways and is regulated in Minnesota by the MPCA under Minnesota Statute 116.07 Subdivisions 2 and 4. Sound travels in a wave motion and produces a sound pressure level. This sound pressure level is commonly measured in decibels. Decibels (dB) represent the logarithmic increase in sound energy relative to a reference energy level. A sound increase of 3 dB is barely perceptible to the human ear, a 5 dB increase is clearly noticeable, and a 10 dB increase is heard as twice as loud. For example, if the sound energy is doubled (e.g., the amount of traffic doubles), there is a 3 dB increase in noise, which is just barely noticeable to most people. On the other hand, if traffic increases to where there is 10 times the sound energy level over a reference level, then there is a 10 dB increase and it is heard as twice as loud.

To approximate the way that an average person hears sound, an adjustment, or weighting, of the high- and low- pitched sounds is made. The adjusted sound levels are stated in units of “A-weighted decibels” (dBA). In Minnesota, traffic noise impacts are evaluated by measuring and/or modeling the traffic noise levels that are exceeded 10 percent and 50 percent of the time during the hours of the day and/or night that have the heaviest traffic. These numbers are identified as the L_{10} and L_{50} levels. For example, an L_{10} value of 65 decibels means that the noise level was at or greater than 65 decibels during 10 percent of the measurement period (i.e., more than 6 minutes per hour). Common noise levels from various indoor and outdoor sources are listed in Table 6.2.1.

6.2.1.3 Regulatory Framework

The MPCA is the governmental regulatory agency responsible for implementing regulations controlling traffic noise in Minnesota. Minnesota state noise standards have been established for daytime and nighttime periods. For residential land uses (identified as Noise Area Classification 1 or NAC-1), the Minnesota State standards for L_{10} are 65 decibels for daytime and 55 decibels for nighttime; the standards for L_{50} are 60 decibels for daytime and 50 decibels for nighttime. Designated canoe sites along the Mississippi River also fall under the state NAC-1 classification. The MPCA defines daytime as 7 a.m. to 10 p.m. and nighttime from 10 p.m. to 7 a.m. Traffic noise analyses are conducted for the peak noise hour during both daytime and nighttime. The peak daytime traffic noise hour typically corresponds to the morning or evening rush hour, while the peak nighttime noise hour is almost always from 6 a.m. to 7 a.m.

TABLE 6.2.1
NOISE LEVEL COMPARISONS

Common Outdoor Noise Levels	Noise Level dB(A)	Common Indoor Noise Levels
	110	Rock Band
Jet flying at 100 feet		
	100	Inside Subway Train (New York)
Gas Lawn Mower at 3 feet		
	90	Food Blender at 3 feet
Diesel Truck at 50 feet		
Noisy Urban Daytime	80	Garbage Disposal at 3 feet
		Shouting at 3 feet
Gas Lawn Mower at 100 feet	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal Speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Small Theatre Large Conference Room (Background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night
	20	Concert Hall (Background)
		Broadcast and Recording Studio
	10	
		Threshold of Hearing
	0	

Source: *Noise Control – New Standards*: W.R. Green: California Department of Transportation, Paper presented at AASHTO Annual Meeting; November 14, 1973.

Minnesota Statute 116.07, Subd. 2a. states that municipal and county roads, except for roadways for which full control of access has been acquired, are exempt from state noise standards. Within the study area, state standards apply to I-94, TH 10, TH 25 and TH 24; all other roads within the study area are county or city roads and are therefore exempt from state standards. State standards would apply to any new river crossing alternative. State standards are depicted in Table 6.2.2.

TABLE 6.2.2
MINNESOTA STATE NOISE STANDARDS

MPCA State Noise Standards					
Land Use	Code	Day (7 a.m. – 10 p.m.) dBA		Night (10 p.m. – 7 a.m.) dBA	
Residential	NAC-1	L ₁₀ of 65	L ₅₀ of 60	L ₁₀ of 55	L ₅₀ of 50
Commercial	NAC-2	L ₁₀ of 70	L ₅₀ of 65	L ₁₀ of 70	L ₅₀ of 65
Industrial	NAC-3	L ₁₀ of 80	L ₅₀ of 75	L ₁₀ of 80	L ₅₀ of 75

For residential and parkland uses (Federal Land Use Category B), the Federal L₁₀ noise abatement criterion is 70 dBA for both daytime and nighttime. Locations where noise levels are “approaching” (defined as being within one decibel of the criterion threshold, i.e., 69 dBA) or exceeding the criterion level must be evaluated for noise abatement feasibility. Federal Noise Abatement Criteria (NAC) are shown in Table 6.2.3.

**TABLE 6.2.3
FEDERAL NOISE ABATEMENT CRITERIA**

FHWA Noise Abatement Criteria		
Category	L₁₀ dBA	Land Use
A	60	Special areas requiring serenity
B	70	Residential and recreational areas
C	75	Commercial and industrial areas
D	NA	Undeveloped areas
E	55*	Residential, hospitals, libraries, etc.

* Applies to interior noise levels. All other land uses are exterior levels.

In addition to the identified noise criteria, the FHWA also defines a noise impact as a “substantial increase” in the future noise levels over the existing noise levels. Mn/DOT considers an increase of five dBA or greater a substantial noise level increase. Because federal funds are anticipated to be used as part of this project, the federal noise criteria would apply to all roads within the project area of a selected Build Alternative.

6.2.1.4 Monitoring

Noise level monitoring is commonly performed during a noise study to document existing noise levels. Existing noise levels can be used as a “baseline” against which future scenarios are compared. In addition, when studying future noise levels projected with computer models, monitored noise levels for existing conditions are compared to modeled results for existing conditions to validate the computer modeling techniques and results.

Existing noise levels were monitored at 28 sites in the project area, chosen to represent areas of outdoor human activity (i.e., residential yards) (see Tables 6.2.4 through 6.2.7). Monitoring locations were chosen at residential sites adjacent to existing traffic noise sources and in areas close to the four potential Build alignments that currently experience little to no traffic noise, (i.e., scattered rural homes near the proposed alternatives). Residences not currently affected by traffic noise are identified in Table 6.2.4 through 6.2.11 as “A,” or ambient. Existing dominant noise at these receptors originates from non-traffic sources. Ambient noise is caused by wind, birds, insects, etc. and varies depending on meteorological conditions and time of day. Ambient noise levels in the study area were measured at levels ranging

from 42 to 51 dBA (L_{10}). Ambient noise levels measured in the study area were averaged and used to characterize the background noise levels at receptors located in areas not affected by traffic noise. The average ambient noise levels at these receptors are 48 dBA (L_{10}) and 45 dBA (L_{50}).

Noise levels were monitored during October 2002. Monitoring methods used in this study comply with state and federal guidelines. A trained noise monitoring technician was present at each session for the entire monitoring session to ensure correct operation of the instrumentation. Noise monitoring results are presented in Tables 6.2.4 through 6.2.7. Monitoring results are presented along with the results of computer modeling for existing daytime noise conditions. The monitored L_{10} noise levels are within three decibels of the modeled levels for most receptors, supporting the validity of the model in predicting future noise levels. Monitored noise levels are more than three decibels different than modeled levels at a few receptors, including R13, R15 and R23. This difference can be explained by the fact that greater variations in noise levels are common in areas where there is a low intensity of traffic noise. These variations are due to the larger role of subtle shifts in wind and ambient noise levels that come into play over the large distances between receptor and sources.

6.2.2 Environmental Consequences

6.2.2.1 Modeled Receptor Sites

Traffic noise impacts were assessed by modeling noise levels at receptor sites (i.e., residences) likely to be most affected by changes in roadway alignment resulting from construction of the proposed Build Alternatives. The average existing ambient noise levels are listed as the Modeled Existing and No-Build noise levels for those residences where traffic noise is not the dominant noise source. Forecast No-Build traffic volumes were used to model noise for those residences that are near existing traffic noise sources (I-94, TH 10, TH 24, etc.). Forecast Build traffic volumes were used to model all residences. If the modeled noise for an isolated receptor was equal to or lower than the ambient level, it was assumed that the proposed roadway alignment had no noise impact and the ambient noise level was reported.

Noise modeling was done using the noise prediction program “MINNOISE”, a version of the FHWA “STAMINA” model adapted by Mn/DOT. This model uses vehicle numbers, speed, class of vehicle, and the typical characteristics of the roadway being analyzed. The vehicle class percentages used for all roads except the I-94 mainline were as follows: automobiles and light trucks, 97 percent; medium trucks, 2 percent; and heavy trucks, 1 percent. Vehicle class percentages used for I-94 were as follows: automobiles and light trucks, 93 percent; medium trucks, 3 percent; and heavy trucks, 4 percent. Posted and proposed speed limits were used to model all roadways.

Noise monitoring and modeling results for existing residential receptors for existing (year 2002) conditions and for the year 2040 are presented in Tables 6.2.4 through 6.2.11. Both daytime and nighttime L_{10} and L_{50} are shown for the existing condition and for year 2040 for both No-Build

and Build Alternatives. While both L_{10} and L_{50} descriptors are shown on the tables, the discussions of modeling results presented below only reference the L_{10} values, since the L_{10} descriptor is used to define both the state and federal noise level regulatory thresholds.

Modeling Results

Alternative A

Noise monitoring and modeling results for Alternative A are shown in Tables 6.2.4 (daytime) and 6.2.8 (nighttime). Figure 6.2-A shows the location of noise modeling receptor sites. The following discussion references only the L_{10} noise levels.

State daytime L_{10} standards are currently exceeded by 2 dBA at one receptor (R7) along the Alternative A corridor. State nighttime L_{10} standards are currently exceeded by 6 to 10 dBA at three receptors (R7, R8 and R14). In general, existing noise levels at residential sites near high-volume roadways such as I-94 and TH 10 are in the low to mid 60s dBA (R7, R8 and R14). Existing noise levels near lower volume roadways such as CSAH 8, CSAH 3, and 35th Avenue are in the mid 50s dBA (R13, R15 and R35), and ambient noise levels at isolated locations away from highways are in the 40s to low 50s dBA (R9 – R12, R36).

Due to projected increases in traffic on CSAH 75, CSAH 8 and the future 33rd Street Crossing, No-Build 2040 L_{10} noise levels in the vicinity of Alternative A would increase by up to 16 dBA over existing levels.

Construction of Alternative A (2040 Build) would result in daytime L_{10} standards being exceeded by 3 to 7 dBA at five receptors (R7, R8, R12, R13, R15); nighttime L_{10} standards would be exceeded at all receptors. In general, noise at isolated receptors would increase by approximately 10 to 22 dBA over existing levels; noise at residences close to I-94 and TH 10 would increase by approximately 0 to 5 dBA over existing levels.

Alternative B

Noise monitoring and modeling results for Alternative B are shown in Tables 6.2.5 (daytime) and 6.2.9 (nighttime). Figure 6.2-B/C shows the location of noise modeling receptor sites. The following discussion references only the L_{10} noise levels.

State daytime L_{10} standards are currently exceeded by 4 to 5 dBA at two receptors (R16 and R22) along the Alternative B corridor. State nighttime L_{10} standards are currently exceeded by 1 to 14 dBA at six receptors (R16-R18, R21-R23). In general, existing noise levels at residential sites near high-volume roadways such as TH 24 and TH 10 are in the 60s to low 70s dBA (R16, R17, R21 and R22). Existing noise levels near lower volume roadways such as CSAH 8 are in the mid 50s to 60 dBA (R18 and R23), and ambient noise levels at isolated receptors are in the 40s to low 50s dBA (R20 and R29).

Figure 6.2-A B&W 8-1/2 x 11

Figure 6.2-B/C B&W 8-1/2 x 11

TABLE 6.2.4
NOISE MONITORING AND MODELING RESULTS (ALTERNATIVE A) - DAYTIME

Receptor ⁽¹⁾	Monitored		Modeled Existing (2002)		2040 No-Build		Difference Between 2040 No-Build and Existing (2002)		2040 Build		Difference Between 2040 Build and Existing (2002)		Difference Between 2040 Build and 2040 No-Build	
	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀
R7 (6)	66	63	67	63	71	69	4	6	72	70	5	7	1	1
R8 (5)	63	59	63	59	67	65	4	6	68	67	5	8	1	2
R9 (1)	50	47	48 (A)	45 (A)	60	58	12	13	59	58	11	13	-1	0
R10 (2)	48	44	48 (A)	45 (A)	62	60	14	15	61	59	13	14	-1	-1
R11 (5)	50	46	48 (A)	45 (A)	54	52	6	7	64	62	16	17	10	10
R12 (1)	51	46	48 (A)	45 (A)	59	51	11	6	70	67	22	22	11	16
R13 (6)	55	46	52	40	63	53	11	13	70	66	18	26	7	13
R14 (1)	64	60	62	58	68	66	6	8	62	60	0	2	-6	-6
R15 (4)	55	51	52	40	68	63	16	23	69	65	17	25	1	2
R35 (2)			55	52	60	59	5	7	65	63	10	11	5	4
R36 (1)			48 (A)	45 (A)	48 (A)	45 (A)	0	0	62	60	14	15	14	15
State Standards	65	60	65	60	65	60			65	60				
Federal Criteria	70	-	70	-	70	-			70	-				

Note: **Bold** numbers are above state standards.
⁽¹⁾Number in () is the number of residences represented by receptor.
(A) = ambient noise levels. Noise at these receptors is dominated by non-traffic sources. Listed ambient noise level is the average level monitored at all such receptors.

TABLE 6.2.5
NOISE MONITORING AND MODELING RESULTS (ALTERNATIVE B) - DAYTIME

Receptor ⁽¹⁾	Monitored		Modeled Existing (2002)		2040 No-Build		Difference Between 2040 No-Build and Existing (2002)		2040 Build		Difference Between 2040 Build and Existing (2002)		Difference Between 2040 Build and 2040 No-Build	
	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀
R16 (8)	71	64	69	62	72	66	3	4	76	72	7	10	4	6
R17 (4)	64	57	62	58	65	62	3	4	68	66	6	8	3	4
R18 (3)	57	51	60	54	66	60	6	6	65	61	5	7	-1	1
R20 (1)	48	45	48 (A)	45 (A)	59	57	11	12	59	58	11	13	0	1
R21 (1)	59	53	61	57	65	62	4	5	65	62	4	5	0	0
R22 (10)	67	56	70	61	73	64	3	3	72	63	2	2	-1	-1
R23 (1)	56	43	57	49	62	57	5	8	58	52	1	3	-4	-5
R29 (8)	51	48	48 (A)	45 (A)	48 (A)	45 (A)	0	0	55	54	7	9	7	9
State Standards	65	60	65	60	65	60			65	60				
Federal Criteria	70	-	70	-	70	-			70	-				

Note: **Bold** numbers are above state standards.
⁽¹⁾Number in () is the number of residences represented by receptor.
(A) = ambient noise levels. Noise at these receptors is dominated by non-traffic sources. Listed ambient noise level is the average level monitored at all such receptors.

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TABLE 6.2.6
NOISE MONITORING AND MODELING RESULTS (ALTERNATIVE C) - DAYTIME

Receptor ⁽¹⁾	Monitored		Modeled Existing (2002)		2040 No-Build		Difference Between 2040 No-Build and Existing (2002)		2040 Build		Difference Between 2040 Build and Existing (2002)		Difference Between 2040 Build and 2040 No-Build	
	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀
R5 (2)	54	45	57	52	65	61	8	9	66	64	9	12	1	3
R6 (3)	52	46	55	49	64	60	9	11	66	64	11	15	2	4
R20 (1)	48	45	48 (A)	45 (A)	59	57	11	12	59	57	11	12	0	0
R21 (1)	59	53	61	57	65	62	4	5	64	62	3	5	-1	0
R22 (10)	67	56	70	61	73	64	3	3	73	64	3	3	0	0
R23 (1)	56	43	57	49	62	57	5	8	63	58	6	9	1	1
R30 (4)			48 (A)	45 (A)	48 (A)	45 (A)	0	0	57	56	9	11	9	11
R31 (1)			48 (A)	45 (A)	48 (A)	45 (A)	0	0	61	60	13	15	13	15
R32 (1)			48 (A)	45 (A)	48 (A)	45 (A)	0	0	55	55	7	10	7	10
State Standards	65	60	65	60	65	60			65	60				
Federal Criteria	70	-	70	-	70	-			70	-				

Note: **Bold** numbers are above state standards.
⁽¹⁾Number in () is the number of residences represented by receptor.
(A) = ambient noise levels. Noise at these receptors is dominated by non-traffic sources. Listed ambient noise level is the average level monitored at all such receptors.

TABLE 6.2.7
NOISE MONITORING AND MODELING RESULTS (ALTERNATIVE D) - DAYTIME

Receptor ⁽¹⁾	Monitored		Modeled Existing (2002)		2040 No-Build		Difference Between 2040 No-Build and Existing (2002)		2040 Build		Difference Between 2040 Build and Existing (2002)		Difference Between 2040 Build and 2040 No-Build	
	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀
R1 (3)	50	48	48 (A)	45 (A)	57	56	9	11	61	60	13	15	4	4
R2 (3)	46	44	48 (A)	45 (A)	48 (A)	45 (A)	0	0	62	61	14	16	14	16
R3 (3)	49	46	48 (A)	45 (A)	55	46	7	1	68	65	20	20	13	19
R4 (6)	43	40	48 (A)	45 (A)	48 (A)	45 (A)	0	0	51	50	3	5	3	5
R24 (1)	50	47	48 (A)	45 (A)	48 (A)	45 (A)	0	0	56	55	8	10	8	10
R25 (2)	61	53	61	55	66	62	5	7	62	60	1	5	-4	-2
R26 (1)	45	43	48 (A)	45 (A)	57	50	9	5	67	65	19	20	10	15
R27 (2)	47	43	48 (A)	45 (A)	61	55	13	10	67	65	19	20	6	10
R28 (4)	42	38	48 (A)	45 (A)	48 (A)	45 (A)	0	0	53	52	5	7	5	7
R28A(1)			48 (A)	45 (A)	48 (A)	45 (A)	0	0	54	53	6	8	6	8
R33 (1)			59	57	64	63	5	6	64	62	5	5	0	-1
R34 (2)			59	56	63	62	4	6	67	66	8	10	4	4
State Standards	65	60	65	60	65	60			65	60				
Federal Criteria	70	-	70	-	70	-			70	-				

Note: **Bold** numbers are above state standards.
⁽¹⁾Number in () is the number of residences represented by receptor.
(A) = ambient noise levels. Noise at these receptors is dominated by non-traffic sources. Listed ambient noise level is the average level monitored at all such receptors.

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TABLE 6.2.8
NOISE MONITORING AND MODELING RESULTS (ALTERNATIVE A) - NIGHTTIME

Receptor ⁽¹⁾	Modeled Existing (2002)		2040 No-Build		Difference Between 2040 No-Build and Existing (2002)		2040 Build		Difference Between 2040 Build and Existing (2002)		Difference Between 2040 Build and 2040 No-Build	
	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀
R7 (6)	65	60	69	66	4	6	70	67	5	7	1	1
R8 (5)	61	57	65	62	4	5	67	65	6	8	2	3
R9 (1)	48 (A)	45 (A)	59	56	11	11	58	56	10	11	-1	0
R10 (2)	48 (A)	45 (A)	61	58	13	13	59	57	11	12	-2	-1
R11 (5)	48 (A)	45 (A)	54	52	6	7	63	61	15	16	9	9
R12 (1)	48 (A)	45 (A)	58	50	10	5	69	66	21	21	11	16
R13 (6)	50	38	61	51	11	13	69	65	19	27	8	14
R14 (1)	62	58	67	65	5	7	61	59	-1	1	-6	-6
R15 (4)	51	40	67	61	16	21	68	63	17	23	1	2
R35 (2)	54	51	59	58	5	7	65	62	9	11	6	4
R36 (1)	41	40	48	47	7	7	61	59	20	19	13	12
State Standards	55	50	55	50			55	50				
Federal Criteria	70	-	70	-			70	-				

Note: **Bold** numbers are above state standards.
⁽¹⁾Number in () is the number of residences represented by receptor.
(A) = ambient noise levels. Noise at these receptors is dominated by non-traffic sources. Listed ambient noise level is the average level monitored at all such receptors.

TABLE 6.2.9
NOISE MONITORING AND MODELING RESULTS (ALTERNATIVE B) - NIGHTTIME

Receptor ⁽¹⁾	Modeled Existing (2002)		2040 No-Build		Difference Between 2040 No-Build and Existing (2002)		2040 Build		Difference Between 2040 Build and Existing (2002)		Difference Between 2040 Build and 2040 No-Build	
	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀
R16 (8)	68	60	71	65	3	5	75	70	7	10	4	5
R17 (4)	61	56	64	61	3	5	68	65	7	9	4	4
R18 (3)	60	53	65	59	5	6	64	60	4	7	-1	1
R20 (1)	48 (A)	45 (A)	58	56	10	11	58	57	10	12	0	1
R21 (1)	61	56	64	61	3	5	64	61	3	5	0	0
R22 (10)	69	59	72	63	3	4	71	61	2	2	-1	-2
R23 (1)	56	48	61	55	5	7	57	50	1	2	-4	-5
R29 (8)	48 (A)	45 (A)	48 (A)	45 (A)	0	0	54	53	6	8	6	8
State Standards	55	50	55	50			55	50				
Federal Criteria	70	-	70	-			70	-				

Note: **Bold** numbers are above state standards.
⁽¹⁾Number in () is the number of residences represented by receptor.
(A) = ambient noise levels. Noise at these receptors is dominated by non-traffic sources. Listed ambient noise level is the average level monitored at all such receptors.

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TABLE 6.2.10
NOISE MONITORING AND MODELING RESULTS (ALTERNATIVE C) - NIGHTTIME

Receptor ⁽¹⁾	Modeled Existing (2002)		2040 No-Build		Difference Between 2040 No-Build and Existing (2002)		2040 Build		Difference Between 2040 Build and Existing (2002)		Difference Between 2040 Build and 2040 No-Build	
	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀
R5 (2)	55	50	64	60	9	10	65	62	10	12	1	2
R6 (3)	54	47	63	58	9	11	65	63	11	16	2	5
R20 (1)	48 (A)	45 (A)	58	56	10	11	58	56	10	11	0	0
R21 (1)	61	56	64	61	3	5	64	61	3	5	0	0
R22 (10)	69	59	72	63	3	4	72	63	3	4	0	0
R23 (1)	56	48	61	55	5	7	62	57	6	9	1	2
R30 (4)	48 (A)	45 (A)	48 (A)	45 (A)	0	0	56	55	8	10	8	10
R31 (1)	48 (A)	45 (A)	48 (A)	45 (A)	0	0	60	58	12	13	12	13
R32 (1)	48 (A)	45 (A)	48 (A)	45 (A)	0	0	54	53	6	8	6	8
State Standards	55	50	55	50			55	50				
Federal Criteria	70	-	70	-			70	-				

Note: **Bold** numbers are above state standards.
⁽¹⁾Number in () is the number of residences represented by receptor.
(A) = ambient noise levels. Noise at these receptors is dominated by non-traffic sources. Listed ambient noise level is the average level monitored at all such receptors.

TABLE 6.2.11
NOISE MONITORING AND MODELING RESULTS (ALTERNATIVE D) - NIGHTTIME

Receptor ⁽¹⁾	Modeled Existing (2002)		2040 No-Build		Difference Between 2040 No-Build and Existing (2002)		2040 Build		Difference Between 2040 Build and Existing (2002)		Difference Between 2040 Build and 2040 No-Build	
	L ₁₀	L ₅₀	L ₁₀	L ₅₀			L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀
R1 (3)	48 (A)	45 (A)	55	54	7	9	60	59	12	14	5	5
R2 (3)	48 (A)	45 (A)	48 (A)	45 (A)	0	0	62	60	14	15	14	15
R3 (3)	48 (A)	45 (A)	53	45	5	0	67	64	19	19	14	19
R4 (6)	48 (A)	45 (A)	48 (A)	45 (A)	0	0	50	49	2	4	2	4
R24 (1)	48 (A)	45 (A)	48 (A)	45 (A)	0	0	55	54	7	9	7	9
R25 (2)	60	53	65	61	5	8	60	58	0	5	-5	-3
R26 (1)	48 (A)	45 (A)	56	48	8	3	66	64	18	19	10	16
R27 (2)	48 (A)	45 (A)	60	54	12	9	66	64	18	19	6	10
R28 (4)	48 (A)	45 (A)	48 (A)	45 (A)	0	0	52	51	4	6	4	6
R28A (1)	48 (A)	45 (A)	48 (A)	45 (A)	0	0	54	53	6	8	6	8
R33 (1)	57	54	62	60	5	6	62	61	5	7	0	1
R34 (2)	57	53	62	60	5	7	66	64	9	11	4	4
State Standards	55	50	55	50			55	50				
Federal Criteria	70	-	70	-			70	-				

Note: **Bold** numbers are above state standards.
⁽¹⁾Number in () is the number of residences represented by receptor.
(A) = ambient noise levels. Noise at these receptors is dominated by non-traffic sources. Listed ambient noise level is the average level monitored at all such receptors.

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Due to projected increases in traffic, No-Build 2040 daytime noise levels in the vicinity of Alternative B would increase by up to 11 dBA over existing levels. Construction of Alternative B (2040 Build) would result in daytime L_{10} standards being exceeded by 3 to 11 dBA at three receptors (R16, R17, R22); nighttime L_{10} standards would be exceeded at all receptors except R29. In general, daytime noise within the cities of Clearwater and Clear Lake would increase by approximately 2 to 7 dBA over existing levels; noise at isolated receptors would increase by approximately 7 to 11 dBA over existing levels. While 2040 Build noise levels within the City of Clear Lake would be greater than existing noise levels, the 2040 Build noise would be slightly lower than the 2040 No-Build levels, due to traffic diverting from old TH 24 to Alternative B.

Alternative C

Noise monitoring and modeling results for Alternative C are shown in Tables 6.2.6 (daytime) and 6.2.10 (nighttime). Figure 6.2-B/C shows the location of noise modeling receptor sites. The following discussion references only the L_{10} noise levels.

State daytime L_{10} standards are currently exceeded by 5 dBA at one receptor (R22) along the Alternative C corridor. State nighttime L_{10} standards are currently exceeded by 1 to 14 dBA at three receptors (R21-R23). In general, existing noise levels at residential sites near high-volume roadways such as TH 24 and TH 10 are in the 60s dBA (R21 and R22). Existing noise levels near lower volume roadways such as CSAH 8 and CSAH 75 are in the mid 50s dBA (R5, R6 and R23), and ambient noise levels at isolated receptors are in the 40s dBA (R20, R30 – R32).

Due to projected increases in traffic, No-Build 2040 daytime noise levels in the vicinity of Alternative C would increase by up to 11 dBA over existing levels.

Construction of Alternative C (2040 Build) would result in daytime L_{10} standards being exceeded by 1 to 8 dBA at three receptors (R5, R6 and R22); nighttime L_{10} standards would be exceeded at all receptors except receptor R32. In general, daytime noise levels at isolated receptors would increase by 7 to 13 decibels over existing levels. Noise at receptors close to TH 10 (R20 and R21) would increase by approximately 3 to 11 dBA over existing levels. Receptors R5 and R6 are located along CSAH 75 near the Alternative C alignment; increased traffic along CSAH 75 by the year 2040 accounts for much of the increase in noise experienced at these residences. Although Alternative C daytime noise levels at these two receptors are 9 to 11 dBA higher than existing noise, noise levels are only 1 to 2 dBA higher than No-Build 2040 noise levels.

Alternative D

Noise monitoring and modeling results for Alternative D are shown in Tables 6.2.7 (daytime) and 6.2.11 (nighttime). Figure 6.2-D shows the location of noise modeling receptor sites. The following discussion references only the L_{10} noise levels.

State daytime L_{10} standards are currently met at all receptors along the Alternative D corridor. State nighttime L_{10} standards are currently exceeded by 2 to 5 dBA at three receptors (R25, R33 and R34). In general, existing noise levels at residential sites near high-volume

Figure 6.2-D B&W 8-1/2 x 11

roadways such as TH 10 and I-94 are in the high 50s to low 60s dBA (R25, R33 and R34). Ambient noise levels at isolated receptors are in the 40s to low 50s dBA (R1 – R4, R24 and R26 – R28). Receptor R28A represents a designated canoe campsite (see Section 6.2.2.2).

Due to projected increases in traffic, No-Build 2040 daytime noise levels in the vicinity of Alternative D would increase by up to 13 dBA over existing levels.

Construction of Alternative D (2040 Build) would result in daytime L_{10} standards being exceeded by 2 to 3 dBA at four receptors (R3, R26, R27 and R34); nighttime L_{10} standards would be exceeded at all but four receptors (R4, R24, R28 and R28A). In general, noise levels at isolated receptors would increase by 3 to 20 decibels over existing levels. Receptors close to TH 10 (R25) would experience an increase of approximately 1 dBA in noise over existing levels. Receptors R33 and R34 are located along local roads near the I-94/Alternative D interchange; increased traffic on these local roads by the year 2040 accounts for much of the increase in noise experienced at these residences. Although Alternative D noise at these two receptors would be 5 to 8 dBA higher than existing noise, noise levels are only 0 to 4 dBA over No-Build 2040 levels.

Residences along the River

Noise modeling results for residences along the river are included in Tables 6.2.4 through 6.2.11. Figures 6.2-A, 6.2-B/C and 6.2-D show the location of noise modeling receptor sites. Receptors R4, R11, R28, R29 and R31 represent existing residences on the Mississippi River banks that currently are not exposed to traffic noise. These receptors are located in areas that would experience a substantial increase in traffic noise if a new river crossing were constructed nearby. Receptor R11, near the Alternative A alignment, would experience an increase of daytime L_{10} noise of 16 dBA over existing levels with construction of Alternative A. Receptor R29, near the existing TH 24 crossing, would experience a 7 dBA increase in daytime L_{10} noise over existing levels with the Alternative B scenario. Receptor R31, near the Alternative C alignment, would experience a 13 dBA increase in daytime L_{10} noise over existing levels with construction of a river crossing in that area. Receptors R4 and R28, near the Alternative D alignment (but farther from the crossing than existing residences at Alternatives A and C), would experience a 3 to 5 dBA increase in noise with construction of Alternative D. Although they would experience a substantial increase in traffic noise, daytime noise levels at all of the receptors adjacent to Alternative A, C and D crossings, would be below the L_{10} state noise standard under 2040 Build conditions.

6.2.2.2 Noise on the River

Construction of a new bridge over the Mississippi River would introduce traffic noise to portions of the river surface that currently do not experience it, and people using non-motorized boats could be expected to hear this traffic noise as they pass beneath the bridge. Modeling was done for the worst-case bridge alignment with regards to noise impacts experienced by boaters on the river itself. Alternative D, which would be closest to the Mississippi River's normal water level (NWL), was considered to be the worst-case. Analysis results for daytime L_{10} and L_{50} noise on the river at different distances away from the proposed bridge are shown in Table 6.2.12. Since traffic volumes along all four proposed Build alignments are similar and the differences in elevation above NWL are within several feet, there would be no perceivable difference between Build Alternatives in noise experienced on the river channel.

TABLE 6.2.12
NOISE MODELING RESULTS ON THE RIVER
(ALTERNATIVE D) - DAYTIME

Horizontal Distance from Bridge (feet)	Modeled Build (2040)	
	L ₁₀	L ₅₀
50	77	74
100	75	72
200	73	70
400	70	67
800	65	63
1,600	61	60
State Standards (NAC-1)	65	60
Federal Criteria (Activity Category B)	70	-

Bold numbers are above state standards.

Receptor R28A represents a canoe camping site on Oak Island, approximately one-half mile upstream from Alternative D. Noise levels at this location would be 54 dBA in both the daytime and nighttime for the 2040 Build condition. This noise level would be below the daytime and nighttime L₁₀ standards and 6 dBA above existing or No-Build conditions. However, the traffic noise at the new crossing locations at Alternatives A, C or D could be annoying to river users looking for a quiet river experience.

6.2.3 Mitigation

Since both state and federal noise criteria are exceeded at a number of existing receptors for all four Build Alternatives, noise impacts would result from construction of any of the Build Alternatives. Mitigation measures to avoid and/or minimize noise impacts could include consideration of use of noise barriers or other sound attenuation methods and/or incorporation of land use controls to limit the number of noise-sensitive receptors located adjacent to or in the vicinity of the preferred Build highway corridor. Guidance for local governments regarding potential noise mitigation measures such as recommended set-back distances from the highway corridor for proposed developments will be provided for the preferred alternative as part of the FEIS process.

6.2.4 Conclusions

Over the next 40 years, development in and around the study area will lead to increased traffic on many of the roads in the study area, particularly I-94, TH 10, CSAH 75 and CSAH 8. This increased traffic will lead to higher traffic noise for the residences adjacent to these roads by the year 2040 regardless of which alternative is selected.

Residences are currently present along each of the proposed alternatives but are sparsely scattered outside the cities of Clearwater and Clear Lake. While there are no currently known platted developments adjacent to the DEIS alternatives, the amount of development adjacent to

each alternative corridor is expected to increase over the next 40 years. The noise analysis completed for this DEIS only analyzed existing receptors; but further discussion of potential impacts to future development along the identified preferred corridor and recommended avoidance measures based on land use planning strategies will be included in the FEIS.

Existing A-weighted noise levels vary from the low 40s in isolated areas away from existing traffic noise sources, to the 70s along TH 24 in the cities of Clearwater and Clear Lake. Increases in traffic volumes by the year 2040 would result in No-Build noise levels increasing by up to 23 dBA over existing noise levels within the project area. Construction of any of the Build Alternatives would result in an increase of L₁₀ noise levels from 0 to 11 dBA over existing conditions in areas close to existing high volume roadways, to up to 22 dBA in isolated areas currently not exposed to traffic noise. Alternative B shows the least amount of noise increases because most of its alignment is along existing high volume roadways. In areas where the Build Alternative is on a new alignment, the noise level increases are comparable for all alternatives.

6.3 PRIME AND STATEWIDE IMPORTANT FARMLAND

The Federal Farmland Protection and Policy Act (FPPA) of 1981 and the Minnesota Agricultural Land Preservation and Conservation Policy Act (M.S. 17.80-17.84) have been enacted to ensure that impacts on agricultural lands and operations are integrated into the decision-making process, and that impacts upon agricultural land are minimized to a reasonable extent. The project area was evaluated to identify any soils classified by the Natural Resources Conservation Service (NRCS) as being prime and unique farmland or statewide and local important farmland. In addition, the study area was reviewed for land held under state and/or federal easement or protection programs.

6.3.1 Affected Environment

As discussed in other sections of this DEIS (e.g., Chapter 5), the study area is dominated by agricultural land uses. The Sherburne, Stearns and Wright County NRCS offices of the U.S. Department of Agriculture were contacted during early coordination to obtain information on the location of prime and unique and statewide and local important farmland in each county and to identify whether any lands within the study were held under state and/or federal easement or protection programs. No state and/or federal easement or protection lands were identified in the study area.

6.3.2 Environmental Consequences

As identified in Section 6.3.1, the three NRCS offices were requested to provide assistance with the completion of the AD 1006 form (the Federal Farmland Conversion Impact Rating form used for proposed conversions of farmland to non-agricultural uses). Table 6.3.1 provides a summary of the information received from the NRCS (see Appendix A for complete information on the AD 1006 results) that was used to compare the impacts of each of the four Build Alternatives.

No impacts to farmland are anticipated with the No-Build Alternative as the No-Build Alternative would continue to utilize the existing TH 24 corridor.

TABLE 6.3.1
FARMLAND CONVERSION IMPACT SUMMARY

Alternative	Total Acreage of Alignment	Acres to be Converted ⁽¹⁾	Percent of Total County or Local Government Farmland to be Converted		
			Sherburne	Stearns	Wright
A	580.5	2.6/9.2 (12.2)	0.03	0.0003	N/A
B	495.1	1.4/44.2 (45.6)	0.01	⁽²⁾	0.01
C	586.4	0.2/148.3 (148.5)	0.06	⁽²⁾	0.04
D	668.9	150.2/11.3 (161.5)	0	⁽²⁾	0.05

⁽¹⁾ Acres of Prime and Unique Farmland/ Statewide and Local Important Farmland to be converted (total).

⁽²⁾ Alternative alignment is not located in this county.

The results summarized in Table 6.3.1 indicate that Alternative D would require the greatest total acreage of prime and unique and statewide and local farmland; however, considering the percent impact to the jurisdictions' prime and unique farmlands and statewide and local farmland, Alternative C would have the greatest impact. None of the farmland impacts of any of the Build Alternatives; however, would represent a substantial portion of farmland in any of the three counties. Also, actual farmland impacts could differ from those identified due to the transition in land use that could occur in any of the four Build corridors by the time a preferred alternative is constructed.

In addition to estimating total acres of farmland acquisition required for construction of each alternative, an estimate was made of the number of farmed fields that would be bisected; that would have decreased field accessibility; or would experience disturbance of the existing irrigation system (including center pivot irrigation). Estimates of these potential impacts on farmed fields were made based on review of existing aerial photos for each Build Alternative corridor. It is estimated that approximately 70 farmed fields will be impacted along Alternative A and approximately 40 parcels will be impacted along Alternatives B, C and D each.

6.3.3 Mitigation

Farmland impacts including those to prime and unique and statewide and local farmland were considered during development of the four Build Alternative alignments. Each alternative was developed with consideration of existing farm field boundaries to minimize bisecting farm fields to the greatest extent possible. Although not all impacts were avoided with the four Build Alternatives, efforts were made to develop the alignments with the least impact to farm parcels. Additional efforts to avoid and minimize impacts on farmland will be part of the development of a preferred alternative design concept.

6.4 CONTAMINATED PROPERTIES

The presence of potentially contaminated properties is a concern in the development of highway projects because of potential cleanup costs and public health concerns associated with encountering unexpected wastes or contaminated soil or groundwater. Potentially contaminated sites are identified early during project development to avoid and/or minimize impacts.

A Phase I Environmental Site Assessment (ESA) provides information on known or potentially contaminated properties. Sites of potential concern identified by a Phase I ESA can be categorized into three risk areas: high, medium and low environmental risk. Table 6.4.1 provides definitions for properties considered to have a high, medium or low potential for contamination.

6.4.1 Affected Environment

Phase I ESAs were conducted for each of the four Build Alternatives to assess the likely presence of potential or known contaminated properties within or directly adjacent to (within 300 feet of) the alternative corridors. The Phase I ESAs were completed in July 2002 in conformance with the American Society of Testing and Materials (ASTM) standard (*Phase I ESAs – Proposed I-94/TH 10 Interregional Connection – Alternatives A – D*, Braun Intertec Corp.).

**TABLE 6.4.1
POTENTIAL FOR CONTAMINATION DEFINITIONS**

High Potential for Contamination	<p>Sites where there are one or more of the following:</p> <ul style="list-style-type: none"> • documented releases to the subsurface, such as a leak or spill • a large amount of chemicals known or inferred to be in use at the facility • stains, odors, stressed vegetation or some other indication that a release has occurred • active or inactive dumps/landfills
Medium Potential for Contamination	<p>Sites where there are one or more of the following:</p> <ul style="list-style-type: none"> • known or inferred medium or small quantities of chemicals used or stored • underground storage tanks with no documented release • indications of poor housekeeping (poor housekeeping can indicate that any leaks or spills which occur may not be handled correctly) • documented releases that have the potential to migrate to the corridor even though the site is located more than 500 feet from the existing corridor right of way
Low Potential for Contamination	<p>Sites where there are one or more of the following:</p> <ul style="list-style-type: none"> • known or inferred small or very small quantities of chemicals used or stored on the property • indications of good housekeeping (good housekeeping indicates that any leaks or spills which occur are more likely to be handled correctly)

Source: Mn/DOT Highway Development Process Handbook. Contaminated Properties, Appendix 1.

The Phase I ESAs compiled the following information:

- Review of regulatory information published by the state and federal agencies, health and/or environmental agencies (including federal EPA and MPCA).
- Review of the history of land use in the corridor including aerial photographs, fire insurance maps, directories and other readily available land use data.
- Reconnaissance and environmental review of the corridor, including an assessment of the corridor for indications of hazardous materials, petroleum products, polychlorinated biphenyls (PCBs), wells, storage tanks, solid waste disposal, pits and sumps, and utilities.
- Area reconnaissance, including a brief review of adjacent property uses and any pertinent environmental information noted in the corridor vicinity.
- Interviews with current owners and/or occupants of the property.
- Interviews with local government officials or agencies having jurisdiction over hazardous waste disposal or other environmental matters in the area of the corridor.

6.4.2 Environmental Consequences

The Phase I ESAs identified 13 known or potentially contaminated properties near the four Build Alternative alignments. Figure 6.3 shows the location of these 13 sites. Each identified property was rated as having high, medium or low potential for contamination (as defined in Table 6.4.1). Twelve of these sites were identified as having a low potential for contamination and one site was identified as having medium potential. No properties were identified as having high potential for contamination. Table 6.4.2 describes the potential for environmental risk and the reason for concern for each of the properties identified.

Because the No-Build Alternative would not involve new construction, it would not have impacts on potentially contaminated sites. No high risk contamination sites were identified along any of the proposed Build Alternatives. The ESA identified two sites (both low potential) along Alternative A; seven sites (all low potential) along Alternative B; one low potential site along Alternative C; and three sites (two low and one medium) along Alternative D.

6.4.3 Mitigation

Further evaluation of potentially contaminated properties identified in the Phase I ESAs will be completed during the FEIS when a preferred alternative has been identified. Any properties within the vicinity of the preferred alternative that have the potential to be affected by construction and/or would be acquired as right of way would be investigated, if necessary, to determine the extent and magnitude of contaminated soil and/or groundwater in the areas of concern. The results of this investigation would be used to determine whether the contaminated materials can be avoided or whether the project's impacts to these properties can be minimized. If necessary, a plan would be developed for properly handling and for treating contaminated soil and/or groundwater during construction. Any soil and groundwater remediation activities would be coordinated with appropriate regulatory agencies.

Figure 6.3

COLOR

11 X 17

BACK

TABLE 6.4.2
KNOWN OR POTENTIALLY CONTAMINATED PROPERTIES THAT MAY BE AFFECTED BY THE PROJECT

Site No. (see Figure 6.3)	Site Address	Alternative	Potential for Environmental Risk	Reasons for Concern
1	3107 TH 10 SE, St. Cloud	A	Low	<ul style="list-style-type: none"> licensed small-quantity generator of hazardous waste (identification does not imply contamination)
2	3467 TH 10 SE, St. Cloud	A	Low	<ul style="list-style-type: none"> registered underground storage tank (UST)
3	East of I-94, west of railroad tracks, St. Augusta Township	A	Low	<ul style="list-style-type: none"> documented releases
4	830 CR 75 S, Elk River	B	Low	<ul style="list-style-type: none"> actual or potential hazardous waste site where “no further remedial action planned” status has been determined by USEPA large- or small-quantity generator of hazardous waste (identification does not imply contamination)
5	I-94/TH 24, Clearwater	B	Low	<ul style="list-style-type: none"> MPCA leaking underground storage tank (LUST) inventory with closure status (January 3, 1994) large- or small-quantity generator of hazardous waste (identification does not imply contamination) spill report
6	CR 75/TH 24, Clearwater	B	Low	<ul style="list-style-type: none"> a licensed large- or small-quantity generator of hazardous waste (identification does not imply contamination)
7	621 Main Street, Clearwater	B	Low	<ul style="list-style-type: none"> hazardous waste facility
8	603 Lime Street, Clearwater	B	Low	<ul style="list-style-type: none"> registered 500-gallon fuel-oil underground storage tank (UST) (identification does not imply contamination)
9	TH 10, Clear Lake	B/C	Low	<ul style="list-style-type: none"> open dump inventory
10	CR 145/I-94	B	Low	<ul style="list-style-type: none"> open dump inventory
11	10290 115th Avenue, Clear Lake	D	Low	<ul style="list-style-type: none"> removed 10,000-gallon diesel-fuel underground storage tank (UST)
12	10568 125th Ave SE, Becker	D	Low	<ul style="list-style-type: none"> hazardous waste facility
13	North of TH 10	D	Medium	<ul style="list-style-type: none"> old dump

6.5 VEGETATION, WILDLIFE AND FISHERIES

6.5.1 Affected Environment

The project area is located in an area of central Minnesota historically occupied by prairies and oak woodlands. The major topographical feature in the study area is the Mississippi River valley. Away from the river valley, land in the study area is relatively flat and is mostly occupied by farmland with scattered wetlands, lakes and woodland. Development in the study area is generally limited to agricultural land uses, scattered areas of large lot residences and development associated with the cities of Clearwater and Clear Lake.

The Mississippi River flows through the study area from the northwest to the southeast. The river ranges from approximately 300 to 1000 feet wide and is generally less than 10 feet deep. This section of the river, upstream from the Twin Cities metropolitan area, has relatively low nutrient concentrations, relatively clear water and low suspended-sediment and pesticide concentrations. (Water quality is addressed in greater detail in Section 7.2). The river valley is irregular in width and depth but generally ranges from one-fourth mile to one mile wide and is approximately 50 to 60 feet from the bluff line to the river. Much of the river corridor is wooded with numerous wooded islands. Valley bluffs are steep in most areas and gradually sloping in a few locations.

While some areas of agricultural fields exist within the river valley, the river floodplain and bluffs have been relatively unscathed by development and are commonly wooded with elm, ash, cottonwood and box elder. Various grass and shrub species are present in the non-forested floodplain areas. Floodplain and bluff forests, while interrupted occasionally by residential development and floodplain farmland, form a more or less continuous corridor along the Mississippi River providing habitat and a migration corridor for many wildlife species. The City of Clearwater on the west bank and the embankment of TH 24 on the east bank are the only substantial intrusions of development on the river corridor in the study area that act as impediments to wildlife movement up and down the river valley.

Land use outside the river valley is generally dominated by agriculture. In the study area, common agricultural land uses include corn, soybeans, potatoes, pasture and hayfields. These agricultural areas provide seasonal habitat for a variety of animal species. Remnants of upland forests, savannahs and prairies that once occupied this area are scattered and typically separated by large tracts of agricultural land. Several large areas of oak woodland are present in non-farmed upland areas. Large tracts of forest are important habitat areas for several songbird species such as the Cerulean Warbler and the Acadian Flycatcher (state species of Special Concern that have been noted in the project area).

6.5.1.1 Vegetation

Native plant communities in the project area were identified through a query of the MnDNR Natural Heritage Program, examination of Sherburne County Biological Survey mapping and a field inspection of each corridor. (Note: Biological surveys were not available for Stearns and Wright counties.) Natural communities are functional units of landscape that are characterized

and defined by their vegetation, hydrology, landform, soil, and natural disturbance cycles. Although natural communities have no legal protection in Minnesota, they are identified, tracked and ranked by the MnDNR according to their relative rarity and endangerment throughout their range. The natural communities in the study area are described in Table 6.5.1 and Figures 6.4-A, 6.4-B/C and 6.4-D show their locations.

TABLE 6.5.1
STUDY AREA NATURAL COMMUNITIES

Natural Communities	State Ranking	Location
Dry oak savanna (central) barrens subtype (two locations)	S2	Top of east bluff adjacent to existing TH 24 (No-Build) and Alternative B; ½ mile east of northern end of Alternative D
Contiguous area of floodplain Forest (three locations)	S3	Approximately ¼ mile east of Alternative C river crossing; ¼ mile downstream and ½ mile upstream from existing TH 24 (No-Build) and Alternative B.
Wet meadow (three locations)	S3	Approximately one mile south of Alternative D (Harry Larson Park); approximately 1 mile north of Alternative A at Sand Prairie WMA; adjacent to existing TH 24 (No-Build) and Alternative B at base of bluff
Oak Forest (big woods) dry subtype	S3	Harry Larson Park, south of Alternative D
Oak Forest (big woods) mesic subtype	S2	Harry Larson Park, south of Alternative D
Mesic prairie (central)	S2	Approximately ½ mile south of existing TH 24 (No-Build) and Alternative B
Rock Outcrop	S4	Approximately 1 mile west of north portion of Alternative A
Oak Woodland-Brushland (three locations)	S4	Top of east bluff adjacent to existing TH 24 (No-Build) and Alternative B; west of Clearwater near Clearwater River; top of east bluff at Alternative C
Colonial water bird nesting site (heron rookery)	Significant Natural Resource	Adjacent to Alternative D at river crossing

S = State Ranking (1-5: 1 = in greatest need of conservation, 5 = secure under present conditions).

6.5.1.2 Wildlife

Woodlands, savannah and prairie in the study area provide habitat for a variety of animals such as deer, fox, woodchuck, rabbit and coyote. Smaller mammals in the study area include chipmunk, squirrel, weasel and pocket gopher. The Mississippi River valley also provides abundant habitat for various songbirds, waterfowl and raptors and serves as a migratory flyway for hundreds of species of birds.

Figure 6.4-A B&W 8 ½ x 11

Figure 6.4-B/C B&W 8 ½ x 11

Figure 6.4-D B&W 8 ½ x 11

Scattered wetlands are present in the study area; however, many have been degraded by surrounding land uses and are typically dominated by reed canary grass and cattails. A few high quality or notable wetlands exist in the project area. These include wetland A-2 (see Figure 3.2-A.1), a large MnDNR-protected marsh surrounded by relatively undisturbed uplands and wetland B-1 (see Figure 3.3-B.1), a sedge meadow at the base of the east river bluff. See Section 7.5 for additional wetland information. Waterfowl use open water wetlands as their primary habitat. Wetlands also are used as habitat by species such as muskrats, turtles, frogs and many species of invertebrates.

The Mississippi River is home to dozens of fish species. Game fish such as channel catfish, walleye, muskellunge, smallmouth bass and northern pike are present in the river with moderate to high abundance. Fish habitat at each of the proposed river crossing sites is discussed below.

6.5.1.3 Fisheries (Aquatic Life)

The river near Alternative A offers unique habitat diversity due to the presence of a long elevation drop upstream culminating in a minor riffle near the bend in the river and the presence of downstream islands. Riffle areas offer spawning habitat for walleye while eddies near islands provide habitat for species such as smallmouth bass. Crappie, channel catfish and rock bass use areas around islands to provide refuge from flows during spawning. In addition, islands offer blow-down trees and root wads as habitat for fish at other times of the year.

The existing bridge at Alternative B was constructed in a manner that constricts the river from the east bank. No unique or high quality fish habitat has been identified here.

The river near Alternative C appears to be a relatively unstable area with steep banks and erosion evident at the sharp bend downstream from this alignment. No major fish habitat is present at the proposed crossing site. Approximately one mile downstream of this alignment, a prominent wintering hole is present at a sharp bend in the river.

The stretch of the river that Alternative D crosses is another area that has a high level of habitat diversity. This area has a major riffle near the proposed crossing and a downstream island.

Several species of mussels are known to inhabit the Mississippi River in the study area. In August 2001, the MnDNR completed a mussel survey of the four alternative bridge crossings. While the river provides good physical habitat, few mussels were found in the study area. No Threatened or Endangered mussel species were noted during the survey. Approximately four species of mussels were identified during this survey. All mussels encountered near the alternative river crossings were collected and moved out of the proposed alignment corridors to avoid any future impacts from bridge construction.

6.5.2 Environmental Consequences

Construction of any of the Build Alternatives would directly impact some wildlife habitat and potentially create a barrier to wildlife movement. Impacts to wildlife habitat from each of the alternatives are evaluated by assessing the impact of each alternative to sensitive wildlife habitat

features such as identified natural communities and fish habitat. Loss of wetlands would also impact wildlife habitat. Impacts to wetlands are described in Section 7.5. Table 6.5.2 below summarizes the potential impacts to habitat features, followed by a more detailed explanation of potential impacts.

**TABLE 6.5.2
SUMMARY OF FISH/WILDLIFE HABITAT IMPACTS**

Alternative	Potential Habitat Impact
No Build	Likely impact to oak woodland at top of east bluff Likely impact to a sedge-dominated wet meadow at base of east bluff
Alternative A	Potential impact to unique fish habitat at proposed bridge
Alternative B	3.6 acres of impact to oak woodland at top of east bluff 0.2 acre of impact to a sedge-dominated wet meadow at base of east bluff
Alternative C	0.4 acres of impact to floodplain forest 4.5 acres of impact to oak woodland at top of east bluff (fragmentation impact)
Alternative D	Potential impact to unique fish habitat at proposed bridge Potential impact to heron rookery at river Likely impact to large forest near I-94 rest area

6.5.2.1 No-Build Alternative

Under the No-Build Alternative, impacts would be confined to the area of the existing TH 24 bridge. This area includes oak woodland, a sedge meadow and the river bottom and shoreline areas that could be impacted by replacement of the bridge. These impacts would also result for all Build Alternatives, since TH 24 bridge reconstruction is part of Build Alternatives A, C and D and replacement of the existing TH 24 bridge would occur for Alternative B.

6.5.2.2 Alternative A

The vast majority of Alternative A would be constructed through farm fields and pastures. Introduction of a four-lane, high-speed roadway through these areas increases the potential for wildlife mortality when crossing the roadway corridor. No identified native plant communities would be impacted by this alternative.

Construction of the bridge structure and approach embankment in the river valley could hinder the ability of wildlife to migrate along the river valley. The southern portion of the project affects some relatively undisturbed pasture with scattered shrubs and trees that is adjacent to a large wetland that may be used by Blanding's turtles, a state-listed threatened species (see Section 6.6 for more information on threatened and endangered species impacts).

Impacts to the river and fish habitat could occur from direct disturbance to spawning habitat and construction activities causing sedimentation in the construction area and in the downstream island area. Permanent impacts could result from changes in flow characteristics from placement of piers in the river channel and increased sedimentation downstream from the bridge from scour action.

6.5.2.3 Alternative B

Similar to Alternative A, the vast majority of Alternative B would be constructed through agricultural areas (with similar wildlife mortality impacts as described for Alternative A) with approximately half of its length following the existing TH 24 alignment. Although the alternative utilizes much of the existing TH 24 corridor and existing river crossing location, widening the corridor to increase capacity and speed would result in increased mortality risk for wildlife crossing the corridor. In addition, the existing embankment and bridge currently restrict wildlife movement along the river corridor. The Build Alternative could further restrict this movement. Impacts to the river valley would include 3.6 acres of impact to the edge of a wooded area on the east bluff and 0.2 acre of impact to a sedge dominated wet meadow at the base of the east bluff. This wetland (wetland B-1 in Figure 3.3-B.1) is one of the few in the study areas that has not been degraded by adjacent land uses.

No critical fish habitat has been identified at the Alternative B crossing. While impacts to fish habitat from this alternative would be minimized (this alternative utilizes an existing crossing location), construction activities releasing sediment into the river could affect downstream habitat.

6.5.2.4 Alternative C

The majority of the length of this alternative would be constructed through farmlands, pastures and existing roadways. However, converting existing roadway corridors to a high-speed, four-lane roadway would result in potential wildlife mortality impacts similar to those described for Alternative A. The portion of the alignment near the river crosses through areas of relatively undisturbed river valley and an oak woodland atop the east bluff. Impacts include approximately 6 acres of shrub grassland on the west side of the river and a 0.4-acre strip of floodplain forest along the east river shore. This alternative would also be constructed through approximately 4.5 acres of the 120-acre oak woodland on the top of the east bluff. While impacts to this woodland would be minimized by constructing the road through its narrowest portion, the remaining woodland would be fragmented into two pieces, approximately 80 acres south of the proposed road and 35 acres north of the proposed road. In addition, construction of the roadway and bridge structure in the river valley could hinder the ability of wildlife to migrate along the river valley.

Impacts to the river and fish habitat (including the deep wintering area downstream from the crossing described in Section 6.5.1.3) could occur from construction activities causing sedimentation. Permanent impacts could result from changes in flow characteristics from placement of piers in the river channel and increased sedimentation downstream from the bridge.

6.5.2.5 Alternative D

Harry Larson Park is located approximately one mile from the southern end of this alternative. No impacts to rare plant communities identified in the park would result from project construction.

Similar to Alternative C, this alternative would primarily be constructed along existing roadways; however, conversion of these existing roads to a high-speed four-lane roadway would result in potential wildlife mortality impacts. Impacts to non-agricultural wildlife habitat from this alternative are concentrated in the river valley and at the far southern portion of the alignment. Temporary disturbance from construction activities and permanent traffic noise impacts could affect the heron rookery located just downstream from the proposed bridge on this alignment. In addition, construction of the roadway and bridge structure in the river valley could hinder the ability of wildlife to migrate along the river valley.

In addition to the disturbance to the river valley, the alternative would affect several wetlands scattered both north and south of I-94. These impacts are evaluated in Section 7.5.

While not identified by the MnDNR Natural Heritage database as a natural community, a large wooded tract is present near the I-94 rest area at the southern portion of this alignment. Approximately 50 acres of forest is located north of I-94 and would not be impacted by this alternative. However the project would bisect the 30-acre woodland south of I-94 and directly impact approximately 9 acres of this 30-acre forest.

Impacts to the river and fish habitat could occur from construction activities causing sedimentation and direct disturbance to spawning habitat. Permanent impacts could result from changes in flow characteristics from placement of piers in the river channel and increased sedimentation downstream from the bridge.

6.5.3 Mitigation

Each of the studied alternatives has been located to avoid impacts to crucial wildlife habitat where possible. For example, proposed alignments follow existing roadways where possible and the alignment of Alternative C was reconfigured to minimize direct impacts to the oak woodland atop the east bluff, and to leave as large a contiguous forest area as possible.

Where impacts to wildlife are unavoidable, the effect of the impacts would be minimized through design features such as provision of wildlife crossing areas below river crossing bridges. Disturbed areas would be re-vegetated with native plants and land in the right of way would be managed to have diverse grassy vegetation with trees and shrubs outside the required roadway clear zone.

During construction, best management practices will be implemented to control erosion and sediment discharge to water bodies. Impacts to fisheries can also be minimized by constraining the timing of construction activities to minimize impacts to spawning fish. Bridge piers would

be designed to avoid changes to river flow patterns. Permanent stormwater treatment would be included in project design for any of the Build Alternatives, to avoid long-term impacts to water quality. As outlined in Section 7.5, impacts to wetlands would be mitigated through the creation of new wetlands.

6.6 STATE/FEDERAL THREATENED AND ENDANGERED SPECIES

6.6.1 Regulatory Overview

This section provides a summary of the presence of threatened and endangered species of plants, animals and aquatic species and their habitat in the study area and regulatory protection of these resources.

6.6.1.1 The Federal Endangered Species Act

The Federal Endangered Species Act was passed into law in 1973. The Act provides broad protection for species of animals and plants that are listed as threatened or endangered in the U. S. or elsewhere. Provisions include granting the Secretary of the Interior authorization to develop and implement recovery plans and the designation of critical habitat for each listed species. The Act outlines procedures for federal agencies to follow when taking actions that may jeopardize listed species and contains exceptions and exemptions.

6.6.1.2 State Endangered Species Act of 1974

Efforts by the federal government to recognize and protect endangered species through legislation were followed in many cases by supportive legislation at the state level. In Minnesota, the state legislature passed the State Endangered Species Act of 1974. The Act states that a species' range in Minnesota should be a factor in determining its status. This statement legally guarantees that a list be developed and maintained specifically for species experiencing problems in Minnesota regardless of their national status. The MnDNR, in conjunction with other plant and animal experts, developed the state list of endangered, threatened and special concern species.

6.6.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 is the domestic law that implements the United States' commitment to four international conventions (with Canada, Japan, Mexico, and Russia) for the protection of a shared migratory bird resource. The MBTA was originally framed to put an end to commercial trade in birds and their feathers. The Act regulates hunting, killing, taking or commerce in any part, nest, or egg of selected birds unless permitted by license or regulations. The Act includes a list of protected species as well as provisions for fines/penalties for illegal takes. The MBTA regulations would apply if, at the tie of bridge replacement, the existing TH 24 bridge is used for nesting by any species protected under this act.

6.6.1.4 Implementation

The United States Fish and Wildlife Service (USFWS) is responsible for review and consultation regarding actions that could potentially impact federally listed threatened and endangered species. Section 7 of the federal Endangered Species Act offers guidelines for interagency coordination that are used when a project may affect a federally protected species. Through this coordination, the USFWS issues guidance and thresholds for determining avoidance and minimization strategies for particular species (e.g., bald eagle nest protection zones).

The Minnesota endangered species program is coordinated and enforced through the MnDNR. Initial project coordination is typically accomplished through a review of the Natural Heritage Information System database. If needed, follow-up coordination with MnDNR or other agency staff is performed.

6.6.2 **Affected Environment**

To evaluate whether rare or endangered species are present in the study area, various state and local agency personnel were interviewed, a request was made to the MnDNR Natural Heritage Program and lastly, a field inspection of each corridor was performed. The USFWS was consulted during the scoping phase of this project and indicated that the project was unlikely to impact any federal endangered species (see October 31, 1997 letter in Appendix B). Based on early review and results of the MnDNR database search (see MnDNR letter dated March 18th, 2002 included in Appendix B), no federal endangered species were identified as being present in the study area. However, observations provided by MnDNR field staff indicate there are two bald eagle nesting areas in the study area: one approximately ¼ mile downstream from the Alternative D river crossing and one approximately ¾ mile downstream from the Alternative C crossing. Additional coordination with USFWS and DNR staff will continue in the future, closer to construction, to determine if additional or revised information on rare species should be considered in project planning/implementation. Table 6.6.1 summarizes the rare species identified as being present in the study area. Figures 6.4-A, 6.4-B/C and 6.4-D show the approximate locations of the identified rare or endangered species.

The *Mississippi Scenic Riverway Management Plan* (January 2003) identifies a number of threatened/endangered mussel species that have been found in the Mississippi River. However, as described in Section 6.5.1, a mussel survey was performed in the four Build Alternative corridors. No threatened or endangered mussel species were found within the four corridors.

6.6.3 **Environmental Consequences**

6.6.3.1 No-Build Alternative

No federal or state listed species have been observed in the vicinity of the existing bridge. Therefore, no adverse impacts to rare species are anticipated from this alternative.

The No-Build Alternative includes replacement of the existing TH 24 bridge over the Mississippi River. If, at the time of the existing TH 24 bridge replacement, the bridge is used by species protected by the Migratory Bird Treaty Act, bridge removal would have to comply with species protection measures of the act.

**TABLE 6.6.1
THREATENED ENDANGERED AND SPECIAL CONCERN SPECIES
IN THE STUDY AREA**

Species	Federal Status	State Status	Number of observations	Most Recent Year of Observation
Animals				
Bald Eagle	Threatened (to be delisted)	Special Concern	1 sighting in Natural Heritage database and two active nests were reported	1994
Loggerhead Shrike		Threatened	12	1995
Blanding's Turtle		Threatened	9	1997
Peregrine Falcon	delisted	Threatened	1	1992
Common Moorhen		Special Concern	1	1985
Red Shouldered Hawk		Special Concern	2	1997
Plains Pocket Mouse		Special Concern	1	1997
Cerulean Warbler		Special Concern	5	1997
Acadian Flycatcher		Special Concern	2	1997
Plants				
Hill's Thistle		Special Concern	2	1997
Small-Leaved Pussytoes		Special Concern	1	1989
Sea-Beach Needlegrass		Special Concern	1	1989
Butternut trees		Special Concern	1	1997

6.6.3.2 Alternative A

Blanding's turtles have been identified in "known concentrations" north of TH 10 in the vicinity of Alternative A (see Figure 6.4-A). Only a small portion of the project (the portion of the proposed interchange north of TH 10) is located near the Blanding's turtle habitat. As shown on the Figure 6.4-A the proposed interchange area is outside the "known concentration" area. Therefore disturbance to Blanding's turtle populations is unlikely.

Another potentially important area of Blanding's turtle habitat is located near the southern portion of Alternative A (between I-94 and the river). This area is identified by the MnDNR as a "potentially important" area for Blanding's turtles. The size and health of the Blanding's turtle population in this area have not been determined nor have boundaries of this area been defined. Alternative A impacts a small portion of a large wetland in this area and could impact turtle nesting and movement to the relatively undisturbed upland along the southern edge of this wetland.

Loggerhead shrikes have been observed nesting north of the river on Alternative A. Project construction is not expected to directly affect any known loggerhead shrike nest sites but construction activity and traffic noise may affect nesting if it occurs close to the alignment.

Since Alternative A includes replacement of the existing TH 24 bridge (as part of the No-Build assumption), the migratory bird issue discussed in Section 6.6.3.1 also applies to Alternative A.

6.6.3.3 Alternative B

A Blanding's turtle has been reported in the City of Clearwater, near Alternative B. While there is a "potentially important" Blanding's turtle area west of Clearwater, Alternative B follows existing roads through Clearwater where there is very limited usable habitat for the Blanding's turtles.

Alternative B construction would include removal of the existing TH 24 bridge. If, at the time of project construction, the existing bridge is used by species protected by the Migratory Bird Treaty Act, bridge removal procedures would have to comply with the act.

No other federal or state listed species have been observed in the vicinity of Alternative B. However, the Blandings turtle sighting in Clearwater described in Section 6.6.3.3 indicates that potential turtle habitat may also be present in the vicinity of Alternative C near Clearwater.

6.6.3.4 Alternative C

A bald eagle nest has been reported approximately three-quarter mile downstream from the proposed river crossing. Based on the distance of the nest to the proposed alignment, disturbance to this nesting site is not expected from Alternative C.

No other federal or state listed species have been observed in the vicinity of Alternative C. Therefore, no adverse impact is anticipated from this alternative.

Since Alternative C includes replacement of the existing TH 24 bridge (as part of the No-Build assumption), the migratory bird issue discussed in Section 6.6.3.1 also applies to Alternative C.

6.6.3.5 Alternative D

A bald eagle nest has been reported approximately one-quarter mile downstream from the proposed river crossing for this alignment. Noise from construction activities and permanent traffic noise may result in disturbance of a nesting bald eagle at this location. Confirmation of the existence and location of this nest (now and in the future) will be coordinated with USFWS staff if this alternative is selected as a preferred alternative.

Blanding's turtles have been identified in "known concentrations" approximately one-quarter mile north of Alternative D, near 120th Street and 97th Avenue. No direct impacts to the "known concentration" area are expected from this alternative. However, construction of the northern connection to 120th Street would be within one-half mile of the known concentration area and could impact potential nesting areas and turtle movement. The quality of this area for turtle nesting is marginal based on agricultural activities on this land.

Loggerhead shrikes have been observed nesting north of the river near Alternative D. Project construction is not expected to directly affect any known loggerhead shrike nest sites but construction activity and traffic noise may affect nesting if it occurs close to the alignment.

Since Alternative D includes replacement of the existing TH 24 bridge (as part of the No-Build assumption), the migratory bird issue discussed in Section 6.6.3.1 also applies to Alternative D.

6.6.4 Mitigation

Mitigation measures to avoid, minimize, or alleviate impacts to threatened/endangered or other protected species will be defined during the design process after a preferred alternative is selected. Additional field surveys may be needed to confirm the presence of rare/protected species in the preferred alternative corridor or at the time that project final design is implemented. Avoidance measures such as minor alignment shifts will be considered during final design to minimize impacts on identified species. Other mitigation measures may need to include timing of construction activities to avoid disturbance during bird nesting periods and/or project design elements to minimize impacts to Blanding's turtles and to facilitate turtle movement across the road corridor.

If construction takes place in known areas of turtle habitat, barriers can be placed to keep turtles out of construction areas. Permanent features such as barriers and turtle crossings can be built into roadway design.

6.7 VISUAL IMPACTS

This section examines the existing visual environment in the study area, who would be affected by visual changes, what visual impacts would result from the implementation of a No-Build or Build Alternative and the possible mitigation measures. This discussion of visual impacts and mitigation measures is based on the Visual Impact Assessment (VIA) process developed by Mn/DOT. It should be noted that this assessment is based on existing land uses, and that future conditions along each of the corridors may change if development or other land use changes occur prior to project construction.

6.7.1 Affected Environment

6.7.1.1 Visual Elements and Landscapes

This section describes the existing visual elements in the vicinity of each alternative and how they combine to create a landscape.

Visual Elements

The visual elements of the study area can be divided into two groups: natural and cultural. These groups are defined as follows:

Natural Elements

The study area's natural environment is composed of those visual elements not constructed by humans. The most dominant feature of the natural environment is the Mississippi River, a part of the State Wild and Scenic River system; however, other features include wetlands and wooded areas.

Cultural Elements

The cultural environment by comparison to the natural environment includes those visual elements that are the result of human modification of the natural landscape or construction activities such as clearing for agriculture and construction of homes, businesses and existing roadways.

Landscapes

Together the natural and cultural environments combine to create four general types of landscapes found within the study area. These landscapes are similar in all four Build alternative corridors and are described below.

General Rural Landscape:

The general rural landscape is dominated by agricultural and rural residential cultural elements. Overall the topography is flat with occasional wetland depressions. The fields are cultivated or pastureland interrupted visually by fencerows, wetlands, and/or farmstead/rural residential land uses. This landscape type changes somewhat at TH 10 (highway-related businesses) and at county roads (rural residences) as well as along some local gravel roads in some areas.

Small City Landscape:

Focused along TH 24 at the City of Clearwater and the Mississippi River, the city is increasingly surrounded by suburban development. Also, the City of Clear Lake, which is less developed than Clearwater, is located along TH 24 just south of TH 10.

Mississippi River Corridor/Mississippi Scenic Riverway:

The Riverway is characterized by topography with more relief than the primarily flat topography of the overall study area. Along the Riverway, the bluffs and shoreline are predominantly heavily wooded. The cultural elements present are primarily small and large lot residential and agricultural land uses. The description of the existing riverway visual environment in the next section incorporates scenic quality ratings (moderate, high, very high and outstanding) developed for the 2003 *Mississippi Scenic Riverway Management Plan* to characterize the overall visual “quality” of the riverway in the vicinity of each proposed river crossing corridor.

Highway Landscape:

Interstate 94, TH 10 and TH 24 currently comprise this landscape with non-natural elements required on a highway facility such as paved surfaces, bridge structures and lighting.

6.7.1.2 Description of Existing Environment for the No-Build and Build Alternatives

No-Build Alternative

The landscape just south of the I-94/TH 24 interchange is in the process of changing from dominantly rural/agriculture to suburban, as recently-initiated suburban development in the City of Clearwater is being constructed. Immediately north of I-94; however, the landscape becomes

that defined as a small city with many cultural elements located in close proximity to TH 24. Leaving the City of Clearwater and crossing the Mississippi River, which is bisected by the TH 24 river crossing, the landscape of the river has more development visible from the river compared to other areas of the river within the study area. From north of the river to south of TH 10, the landscape is similar to the rural landscape seen throughout a majority of the I-94/TH 10 DEIS study area with rural residential homes, agriculture land uses, the Clearview Elementary School and county roads including CSAH 8 and CR 57. However, prior to intersecting TH 10, TH 24 travels through the City of Clear Lake.

Alternative A

The greatest concentration of cultural features along this alternative is located adjacent to I-94, the southern terminus of this corridor. At this location, a small development of smaller lot size homes borders the county roads on the northern and southern sides of I-94. Beyond this small pocket of homes, the landscape is more consistent with the general rural landscape. As the proposed alternative corridor continues north, the landscape is rural with local roadways including CSAH 75 and some rural residential land uses on larger acreage lots. Before reaching the dominant rural/agricultural landscape north of the Mississippi River, the alternative crosses the Mississippi River and associated floodplains to the north and south. The landscape of the Riverway can be differentiated from the surrounding visual environment by its dense trees and a minimal cultural environment composed of a few rural residential large lots. From an area just northeast of the river, the landscape continues as a rural landscape but begins to follow an existing local roadway crossing CSAH 8, CR 60 and CR 65. This rural landscape continues through the TH 10 mainline with the exception of a few cultural elements (highway-related businesses).

Alternative B

Alternative B would follow the existing TH 24 roadway from I-94 to approximately 1,100 feet south of the existing TH 24/CR 57 intersection and the Clearview Elementary School. Alignment B is the only Build Alternative that directly passes through the small city landscape.

The landscape from the I-94/Alternative B interchange to the TH 24/CR 57 intersection is the same as the No-Build Alternative, where Alternative B leaves the existing TH 24 corridor and continues north through the rural landscape. The strongest cultural element of the northern segment of Alternative B is the Clearview Elementary School at the intersection of TH 24 and CR 57. Similar to Alternative A, the landscape continues to be rural at TH 10, with the existing TH 10 mainline dominating the otherwise natural environment.

Alternative C

The southernmost portion of this alignment originates at I-94 (southeast of the existing I-94/TH 24 intersection) where there are some rural residential homes situated on large acreage lots (south of I-94) and agricultural lands. North of I-94, the alignment crosses CSAH 75, where more rural residential homes are located. The alignment continues north and bisects the natural environment associated with the Mississippi River including the wide wooded floodplain along

the northern shore. From the river north to the proposed local interchange near the Clearview Elementary School (TH 24), the alignment follows the section lines as closely as possible in an area of relatively few rural residential properties and county roads. Alternatives B and C have identical alignments from approximately 1,100 feet south of the existing TH 24/CR 57 intersection and the Clearview Elementary School north to TH 10.

Alternative D

At Alternative D's southern terminus at I-94, the landscape is primarily rural with few rural residential properties. The alternative then extends north through an area of primarily large acreage rural residential land uses, following the existing Barton Avenue to just south of the river. Barton Avenue has the densest area of residential development along this alternative, although the lot sizes are still relatively large. The alignment continues across the Mississippi River and the associated floodplains before extending north along the western edge of the Xcel Energy SHERCO Plant property. The power plant stacks are a very strong cultural visual element of the view to the east within this rural landscape along this alternative corridor. Continuing north, the alignment crosses primarily agricultural lands and some large acreage rural residential properties, following an existing rural roadway (e.g., CSAH 53) from CSAH 8 to just south of the proposed TH 10 interchange. North of the proposed TH 10/Alternative D interchange, the connection to TH 25 crosses more agricultural and large acreage rural residential properties to connect with the current alignment of TH 25.

6.7.2 Affected Viewers

Viewers are those persons who experience the natural and cultural visual elements of the study area. Three groups of viewers have been identified for the study area: neighbors, travelers, and riverway users.

- 1) Neighbors are those persons such as residents, farmers and commercial businesses adjacent to the alternative corridors.
- 2) Travelers are those persons such as local travelers using the roadways for short trips, regional travelers using the roadway system for commercial and commuting purposes and recreational travelers traveling to and through the area.
- 3) Riverway users are those persons using the Mississippi River and its facilities such as boat landings.

6.7.3 Visual Consequences

Chapter 3 of this DEIS describes the main design features of the proposed project for each alternative. This section will describe how the proposed alternatives would affect existing landscapes from the perspective of neighbors, travelers and Mississippi Riverway users, including both adverse and beneficial visual impacts.

6.7.3.1 No-Build Alternative

The No-Build Alternative would result in minimal visual impacts to neighbors, travelers and riverway users at the existing TH 24/Mississippi River crossing. The existing bridge may be replaced by a slightly wider bridge to improve safety for vehicular traffic and pedestrian/bicycle travel across the river. Reconstruction of the bridge would not likely require a change in bridge height or the configuration of the existing embankment.

6.7.3.2 Alternative A

At the southern terminus of the alignment, a new I-94/Alternative A interchange would be constructed to provide access to I-94 and Alternative A (refer to Figure 3.2-A.1 for the interchange configuration). The highest elevation of the interchange and ramps will be approximately 32 feet above the adjacent land surface. Possible impacts may result to neighbors located near this interchange including residential and farmland users who may view the human made structure elevated above the existing landscape. No impacts are anticipated to result for travelers, as the interchange would be perceived as a continuation of the existing highway landscape.

From I-94 to the Mississippi River and from the Mississippi River north to the TH 10/Alternative A interchange, the four-lane freeway and overpasses at CSAH 75, CSAH 8, CR 60 and CR 65 would be visible to neighbors who would now view the highway facility instead of the existing rural landscape only interrupted today with much more narrow paved or gravel roads. Travelers along this segment of the proposed alignment would not be impacted, as the proposed facility would allow them the opportunity to view the rural landscape once not as easily accessible.

At the Mississippi River, the proposed highway including the river crossing bridge and bridge approaches would alter this segment of the Mississippi River corridor identified in the 2003 *Mississippi Scenic Riverway Management Plan* for its high scenic value along the north shore. Neighbors would view the bridge as a strong structural visual element in an otherwise predominantly natural landscape. The Alternative A crossing is located in the 'scenic' section of the Riverway (see Section 6.10 for additional discussion regarding this designation).

Mississippi Riverway users would see the bridge from a distance of approximately one mile upstream. In the immediate vicinity of the bridge, the bridge and pier structures would dominate the landscape. The bridge height would be approximately 25 feet above the top of the riverbank. Additional alterations to the existing landscape would result from an anticipated 20-foot cut into the bluff top on the northern shore. Similar to the segment from I-94 to the Mississippi River, travelers would have the opportunity to view a rural landscape previously not as accessible.

Similar to the I-94/Alternative A interchange, the TH 10/Alternative A interchange would result in visual impacts to neighbors with the interchange and ramps having its highest elevation at 35 feet (see Figure 3.2-A.4 for the interchange configuration). Travelers would not be impacted, as the interchange would be perceived as a continuation of the highway landscape.

6.7.3.3 Alternative B

A new proposed I-94/Alternative B interchange at the southern terminus of Alternative B would have an elevation of approximately 33 feet above the adjacent land surface (see Figure 3.3-B.1 for the interchange configuration). The neighbors at the southern terminus of the alternative, including residents and businesses in the City of Clearwater, are located in close proximity to the interchange. The interchange structures would elevate above the existing landscape, making them visible to adjacent neighbors. No impacts are anticipated to result for travelers, as the interchange would be congruent with the existing highway landscape.

North of the I-94 interchange and south of the Mississippi River, the neighbors in the City of Clearwater may experience visual impacts from the proposed four-lane controlled access freeway that would replace the existing TH 24 roadway; the proposed overpass at CSAH 75 in downtown Clearwater and the local access overpass between CSAH 75 and CR 7 (east of downtown Clearwater). The visual impacts from this alternative in the City of Clearwater would differ from the visual impacts experienced in a non-city landscape. In a non-city landscape, distance from the structural element allows separation from the impact; however, in the city, the close proximity of the structural elements increases their perceived dominance. Although most travelers through the area would not perceive any visual impact from this alternative, since it maintains a 'highway' character, travelers who have used this corridor in the past and who were familiar with the city (and who stopped for services in the city) would notice a change in the highway landscape.

The segment of the river in the vicinity of the Alternative B (existing TH 24) crossing was identified in the *Mississippi Scenic Riverway Management Plan* as having high scenic value despite the presence of the existing TH 24 bridge and the City of Clearwater. This alternative is located at the dividing point in the riverway designation: 'scenic' to the north and 'recreational' to the south (see Section 6.10). At the Mississippi River, the wider highway, bridge and bridge approaches would expand the visual dominance of the roadway crossing, compared to the scale of the existing crossing at the Mississippi River corridor. City of Clearwater neighbors would continue to view a bridge; however, it would be a larger structure. Mississippi River users would continue to experience visual impacts of the bridge beginning approximately three-quarter of a mile upstream. The bridge height would be approximately 35 feet above the top of the bank but would not require additional bluff cuts, as it would be constructed on the existing embankment. Travelers along this segment of Alternative B are not anticipated to be affected by the change in the highway landscape.

Alternative B would continue north from the Mississippi River to a location along TH 24 (approximately 1,100 feet south of the existing TH 24/CR 57 intersection), leaving the cultural landscape of the city composed of buildings and structures and enter a landscape composed of rural residential properties and agricultural land uses. Neighbors would continue to experience the visual impact of a highway facility although larger in scale and the resulting visual impacts of the structural element of a new overpass at CSAH 8. Travelers would continue to benefit from access to this pleasant rural landscape.

From the alternative's diversion from the existing TH 24 roadway north to TH 10, there are few cultural elements with the exception of rural residential homes and the Clearview Elementary School (near CR 57). With the addition of a proposed local interchange at CR 57 (west of the elementary school), neighbors would experience the impacts of a new highway and the structural visual element of the elevated interchange. Travelers would not be impacted by the new roadway or the interchange but would benefit from the access to the pleasant rural landscape characteristic of this area. The residents and businesses along the existing TH 24 corridor through Clear Lake may perceive a visual benefit from lower traffic levels and less congestion in the old TH 24 corridor, once much of the traffic moves to the new Alternative B corridor.

At the northern terminus of the alternative along TH 10, the landscape continues to be primarily rural with the exception of a few commercial and agricultural businesses at the proposed location of the TH 10/Alternative B interchange. Neighbors would be able to see the proposed interchange at TH 10, since it would be approximately 32 feet above the adjacent land surface. Travelers would experience no impact, as the landscape would continue to be a highway landscape.

6.7.3.4 Alternative C

At the southern terminus of Alternative C, a new I-94/Alternative C interchange would be constructed to provide access to I-94 and Alternative C (refer to Figure 3.4-C.1 for the interchange configuration). The highest elevation of the interchange and associated ramps would be approximately 30 feet above the adjacent land surface, making the interchange visible to some rural residential and farmland neighbors located near the interchange. No impacts are anticipated to result for travelers, as the interchange would be congruous with the existing I-94 highway landscape.

From I-94 to the Mississippi River and from the Mississippi River north to the TH 24/CR 57 intersection and a new local interchange at TH 24/Alternative C, Alternative C would result in visual impacts with the addition of two new overpasses at CSAH 75 and CSAH 8. These structures would result in the addition of structural elements elevated above the adjacent land surfaces. The roadway itself would add a highway visual element to an otherwise rural landscape. Impacts to neighbors would result from these alterations of the environment; however, travelers would not experience adverse impacts but would benefit from views of a rural landscape.

Along the Mississippi River, the bridge and bridge approaches would alter this segment of the Mississippi River corridor identified in the *Mississippi Scenic Riverway Management Plan* for its high scenic value along the northern shore. This section of the Riverway is designated as 'recreational' in the state Wild and Scenic River System. Neighbors would view the bridge as a strong structural visual element in an otherwise natural landscape. Mississippi Riverway users would be able to view the bridge from approximately one-half mile upstream amongst the dominantly natural landscape. In the immediate vicinity of the bridge, the bridge and piers would dominate the landscape with the bridge approximately 17 feet above the top of the riverbank. Additional alterations to the existing landscape would result from the required eight-foot cut in the northern bluff. Travelers would benefit from the opportunity to view this segment of the river.

As previously identified, the alignment of Alternatives B and C are identical from approximately 1,100 feet south of the existing TH 24/CR 57 intersection and the Clearview Elementary School north to TH 10, therefore the visual impacts would be the same as described for Alternative B in this segment.

6.7.3.5 Alternative D

From the southern terminus at I-94, this alternative would erect a structural visual element with the construction of the I-94/Alternative D interchange. Neighbors near the interchange would be able to see the interchange and ramps that will have a maximum height of approximately 32 feet above the adjacent land surfaces (refer to Figure 3.5-D.1 for the interchange configuration). Travelers would experience no impacts as a result of the interchange, as this structure would be perceived as a continuation of the highway landscape. North of the interchange, the proposed four-lane roadway would follow Barton Avenue, where most neighbors would be able to see the highway located in close proximity to their homes as well as the proposed CSAH 75 overpass. The proposed roadway would divert from Barton Avenue and cut through the rural landscape south of the river, where it will be visible to rural residential neighbors. Travelers through this area would not be impacted but benefit from the pleasant rural landscape.

At the Mississippi River, the four-lane river crossing and approaches would alter this segment of the river corridor identified in the *Mississippi Scenic Riverway Management Plan* for its high scenic quality. This section of the Riverway is designated as ‘recreational’ in the state Wild and Scenic River System. Neighbors would view the bridge as a strong visual structural element in an otherwise natural landscape. Mississippi Riverway users would be able to view the bridge from approximately one-quarter mile upstream from the bridge amongst a dominantly natural landscape. In the immediate vicinity of the bridge, the bridge and piers would dominate the landscape with the bridge approximately 20 feet above the top of the bank. Additional alternations to the existing landscape would result from the necessary 20-foot bluff cut on the east bank. Travelers would benefit from the opportunity to view this segment of the river.

6.7.3.6 Summary of Environmental Consequences

Each Build Alternative would affect the visual quality for neighbors and Mississippi Riverway users by adding highway, bridge and interchange structures to predominantly rural, small town or natural riverway landscapes. Neighbors in the rural and river corridor landscapes would experience the greatest change in visual quality with the freeway and associated structural elements that would convert the existing landscape to a highway landscape. In addition to the changes in the natural environmental elements and associated landscapes, the neighbors in the small city landscape of Clearwater would experience further visual impacts to its cultural elements with the added presence of a larger highway facility through their city under Alternative B. These impacts to neighbors in the City of Clearwater would affect more people than the impacts to the rural and river corridor landscape.

In addition to the adverse impacts that may result for neighbors along the river corridor, river users may also experience adverse impacts to their river experience with the addition of river crossings, bridge piers and bluff cuts. The No-Build Alternative and Alternative B would result in less impacts than Alternatives A, C and D, since they involve replacement of the existing TH 24 bridge, but no new river crossing corridors.

No adverse impacts to visual quality are anticipated to result for travelers in the study area. Travelers would either continue to experience additional structural elements consistent with the existing highway landscape or experience the benefit of rural and river corridor landscapes not previously accessible or easily accessible. The highway facilities would also be less congested offering a better driving experience.

6.7.4 Mitigation

This section of the DEIS lists possible measures that could be considered to mitigate for visual impacts within the different landscape types along the Build Alternative corridors including identification of the relative level of mitigation required. Once a preferred alternative is selected for the FEIS, the mitigation measures would be evaluated further and refined.

- I-94 and TH 10 Interchanges

Design elements such as bridge structure and/or landscaping would be considered to minimize impacts to neighbors. (Less mitigation required)

- General Rural Landscape

Design elements such as landscaping would be considered to minimize impacts to neighbors. (Less mitigation required)

- Alternative B within the City of Clearwater

Provide extensive aesthetic treatments at structures and landscaping to minimize visual impacts. (More mitigation required)

- Mississippi River Corridor

Minimize bluff impacts and/or keep lower profile bridge, provide aesthetic treatments at bridge, minimize clearing of vegetation or replace with native vegetation. (More mitigation required).

6.8 PARKS, TRAILS, RECREATIONAL AREAS AND NATURAL RESOURCE AREAS

This section provides information about public recreational and natural resource areas within the study area. Section 4(f) and Section 6(f) applicability are addressed within this section for the study area's parks, recreation and natural areas; however, the discussion of Section 4(f) applicability related to historic sites is addressed in Chapter 8. Figures 6.5-A, 6.5B/C and 6.5-D identify the locations of the public recreation and natural resources discussed. With each of the four Build Alternatives and the No-Build Alternative, the primary recreational resource is the Mississippi River which is designated as a part of the state Wild and Scenic River System and as a state Canoe/Boating Route from Anoka to St. Cloud. Impacts to the river as a recreational

Figure 6.5-A B&W 8 ½ x 11

Figure 6.5-B/C B&W 8 ½ x 11

Figure 6.5-D B&W 8 ½ x 11

resource are identified in Section 6.10. In addition to the river, there are several other recreational amenities within the study area. Following is a description of these resources and potential impacts that may result from the proposed alternatives as well as potential mitigation measures to minimize impacts.

6.8.1 Affected Environment

6.8.1.1 Resources in the Vicinity of the Existing TH 24 (No-Build) Corridor

Publicly-owned recreational and natural areas in the vicinity of the existing TH 24 corridor (see Figure 6.5-B/C) include:

- Clear Lake Scientific and Natural Area (SNA)

The Clear Lake SNA is located along the north shore of the Mississippi River approximately 650 feet upstream from the existing TH 24 river crossing. The Clear Lake SNA is recognized for its mosaic of oak forest, floodplain forest, and old field sumac thicket habitats, along with a small population of the very rare Hill's thistle, which is identified as a species of special concern in Minnesota. The Minnesota SNA program preserves natural features and rare resources of exceptional scientific and educational value. SNAs are open to the public for nature observation and education, but are not meant for intensive recreational activities. As a general rule there are no trails, restrooms or other facilities.

- Clearwater Wayside/Riverside Park

The wayside/park is located on the south shore of the Mississippi River approximately 650 feet upstream from the existing TH 24 river crossing (across the river from the Clear Lake SNA). There are park and picnic opportunities for users, including views of the Mississippi River.

- MnDNR-operated public boat landing

The boat landing is located on the north shore of the Mississippi River, immediately north of the existing TH 24 river crossing.

- Spring Street Park

This city park is located along CSAH 75, approximately 0.25 mile southeast of TH 24, in the City of Clearwater.

- Warner Lake County Park

The park is located approximately 1,300 feet south of I-94 (south of the City of Clearwater). This park is owned by Stearns County and offers opportunities for camping, swimming and picnicking to the public.

6.8.1.2 Trail Resources Common to All Alternatives

The study area includes existing and concept level trails that are common to all four Build Alternatives and the No-Build Alternative. The entire study area is traversed by a state Grant-in-Aid (GIA) snowmobile trail currently designated on an abandoned railroad bed that parallels CSAH 75 from St. Cloud to Monticello. GIA trails utilize easements across private and public land and are managed/maintained by local organizations, with some funding provided by the MnDNR. Since the trail corridors are located on easements, the location of these trails can vary over time as easement agreements change.

Cooperative trail planning efforts among local governments (cities of St. Cloud and Clearwater) have resulted in the development of concept plans for two future multi-use (ped/bike, in-line skate and undergroomed cross country skiing) trail corridors that traverse some or all of the study area:

- The City of St. Cloud has a plan (*Beaver Island Regional Trail Concept Plan*, May 2000) that identifies the general location of the Beaver Island Trail extension along CSAH 75 from the eastern city limits of St. Cloud to Warner Lake Park in Clearwater. This trail would traverse the Alternative A and B corridors.
- The City of Clearwater has a plan (*River County Regional Trail Concept Plan*, January 2002) that identifies the River County Regional Trail (an extension of the Beaver Island Trail) along CSAH 75 from Warner Lake Park in Clearwater to Monticello. This trail would traverse the Alternative B, C and D corridors as well as the No-Build corridor.

The entire trail would extend from St. Cloud to the western city limits of Monticello and primarily follow the CSAH 75 roadway. To date, no segment of either of these trail corridors has been constructed.

6.8.1.3 Resources in the Alternative A Corridor

The Mississippi Scenic Riverway (see Section 6.10) is the primary recreation amenity within the Alternative A corridor. There is also a 700-acre wildlife management area (WMA) known as the Sand Prairie WMA, located approximately 250 feet northwest of Alternative A's northern limit along TH 10 (see to Figure 6.5-A). This WMA includes diverse native plant and wildlife communities that are accessible to the public by a trail system that begins from a parking area just off of TH 10.

6.8.1.4 Resources in the Alternative B Corridor

No additional resources are located in the Alternative B corridor other than the Mississippi Scenic Riverway and those resources identified for the existing TH 24 (No-Build) corridor (Section 6.8.1.1).

6.8.1.5 Resources in the Alternative C Corridor

No additional resources are located in the Alternative C corridor other than the Mississippi Scenic Riverway and those resources identified in Section 6.8.1.2.

6.8.1.6 Resources in the Alternative D Corridor

There are two recreational resources located in the vicinity of the Alternative D crossing of the Mississippi Scenic Riverway. Snuffy's Landing is a park operated by the City of Becker on land owned by Xcel Energy (and leased to the city through a revocable lease agreement). It is located on the north shore of the proposed Alternative D river crossing (see Figure 6.5-D) and provides public boat access and picnicking recreation opportunities on the Mississippi Scenic Riverway. Also, upstream approximately 2,500 feet from the proposed Alternative D bridge is the Oak Island canoe campsite established by MnDNR.

Approximately 700 feet south of Alternative D's proposed interchange at I-94 is the Harry Larson County Forest which provides the public with two miles of hiking/skiing trails as well as a small picnic area and restrooms.

6.8.2 Environmental Consequences

6.8.2.1 No-Build Alternative

The No-Build Alternative could result in potential temporary or permanent access impacts to users of the MnDNR boat landing as a result of bridge replacement and/or increasing roadway congestion. The extent of these impacts is dependent on specific bridge reconstruction plan requirements and/or access management strategies that may be required in the future on the TH 24 corridor.

Section 6.10.2 describes potential No-Build impacts to the Mississippi Scenic Riverway from TH 24 bridge reconstruction.

The No-Build Alternative would not impact trail resources identified in Section 6.8.1.2.

6.8.2.2 Impacts Common to the Four Build Alternatives

All four Build Alternatives would impact the Mississippi Scenic Riverway. Section 6.10.2 describes those impacts.

In addition, all four Build Alternatives could potentially affect the GIA snowmobile trail and/or the proposed multi-use trails (see Section 6.8.1.2) if they exist at the time of project construction.

6.8.2.3 Alternative A Impacts

In addition to the impacts identified in Section 6.8.2.2, there is the potential for indirect impacts to the Sand Prairie WMA resulting from the Alternative A/TH 10 interchange and associated roadway improvements although there would be no direct impacts to the Sand Prairie WMA. The Sand Prairie WMA as previously identified is located approximately 250 feet northwest of the most northern limit of Alternative A improvements and approximately 1,400 feet northwest

of the highest elevation of the interchange structure. Due to its proximity to the TH 10 roadway improvements and the elevation of the interchange (approximately 35 feet above the existing TH 10 roadway), both noise and visual impacts may be experienced for WMA visitors using the southern portion of the resource.

6.8.2.4 Alternative B Impacts

In addition to the impacts identified in Section 6.8.2.2, Alternative B would change local and regional system access to the Clearwater Wayside/Riverside Park and Warner Lake County Park, located northwest of TH 24. Currently visitors wishing to access the Clearwater Wayside/Riverside Park and Warner Lake County Park are able to take TH 24 north and then turn west onto CSAH 75 to the parks. Under Alternative B conditions, visitors coming from I-94 would utilize the existing I-94/TH 24 diamond interchange and then travel south on TH 24 to east CR 7. From CR 7, visitors from I-94 or from south TH 24 would then travel north on the new overpass and then west on CSAH 75 to the parks. Access to Spring Street Park (located southeast of TH 24) would also change, visitors would need to be routed from the previous TH 24 access via the CSAH 75 intersection to the new route via the proposed CR 7/CSAH 75 overpass.

Access would also change for those wanting to visit the Clear Lake SNA and the MnDNR boat launch northwest of the proposed alignment. Visitors to the Clear Lake SNA can currently gain access to this area from TH 24 to CSAH 8. With the proposed improvements this at-grade intersection would be closed and CSAH 8 would pass over the regional connection. In order to gain access to the Clear Lake SNA from the interregional connection, visitors would need to utilize the new local interchange at CR 57. From CR 57, visitors would be able to gain access to CSAH 8 to the SNA. In addition, the MnDNR boat landing northwest of the proposed alternative and along the north shore of the river would no longer be accessible directly from TH 24. Access to the MnDNR boat launch would require visitors to use the same route as those accessing the Clear Lake SNA via a proposed frontage road from CSAH 8 to the boat launch (see Figure 6.5-B/C).

6.8.2.5 Alternative C Impacts

No additional impacts to parks, recreation areas or natural areas would result from Alternative C beyond those identified in Section 6.8.2.2.

6.8.2.6 Alternative D Impacts

In addition to the impacts identified in Section 6.8.2.2, Alternative D would impact Snuffy's Landing park (operated by the City of Becker on land leased from Xcel Energy) with the construction of the river bridge. The proposed improvements would require the acquisition of approximately five acres of right of way from the park area. Visitors to Snuffy's Landing would experience increased noise and visual impacts from the river crossing bridge that is proposed to span over the park. Alternative D would also result in a change of access to Snuffy's Landing; however, access would be maintained. Visitors from the City of Becker would access the park

from TH 10 at CSAH 8, travel west on CSAH 8, over the interregional connection to a new north-south frontage road parallel to Alternative D on the west side, and then travel south to Snuffy's Landing.

The MnDNR campground on Oak Island (approximately 0.5 mile upstream from the river crossing) could also experience increased noise and visual/light impacts from the river crossing although noise levels are not predicted to be above state or federal regulatory thresholds. (Sections 6.2 and 6.10 discuss noise and visual/light impacts, respectively.)

6.8.3 Section 4(f)/Section 6(f) Impacts

The Section 4(f) legislation as established under the Department of Transportation Act of 1966 (49 USC 303, 23 USC 138) provides protection for publicly owned parks, recreation areas, historic sites (regardless of ownership), wildlife and/or waterfowl refuges from conversion to a transportation use. The FHWA may not approve the use of land from a significant publicly owned park, recreation area, or wildlife and waterfowl refuge, or any significant historic site unless a determination is made that: 1) There is no feasible and prudent alternative to the use of land from the property; and 2) The action includes all possible planning to minimize harm to the property resulting from such use (23 CFR 771.135).

Additional protection is provided for outdoor recreational lands under the Section 6(f) legislation (16 USC 4602-8(f) (3)) where Land and Water Conservation (LAWCON) funds were used for the planning, acquisition or development of the property. These properties may be converted to a non-outdoor recreational use only if replacement land of at least the same fair market value and reasonably equivalent usefulness and location is assured.

The project has been reviewed for potential applicability of Section 4(f). Other than the Section 4(f) impact to the historic Franz Hurre Farmstead, identified in Chapter 8 and addressed in a Draft Section 4(f) Evaluation in Appendix B, the four Build Alternatives would not result in other impacts to publicly owned parklands, waterfowl or wildlife refuges, recreation areas, land from other historic sites or any other property determined to be subject to the provisions of Section 4(f).

The project has also been reviewed for potential Section 6(f) involvement. None of the alternatives would cause the conversion of any land acquired, planned or developed with funds from the Land and Water Conservation Act of 1965 (LAWCON). Therefore, Section 6(f) is not applicable to this project.

6.8.4 Mitigation

The No-Build Alternative may result in temporary or permanent impacts to the MnDNR boat landing and use of the Mississippi Scenic Riverway (Section 6.10). Potential impacts to the existing public access could be mitigated by providing an alternative access.

All four Build Alternatives could affect the Mississippi Scenic Riverway. Section 6.10 describes mitigation for potential riverway impacts. In addition, all four Build Alternatives could

potentially affect the GIA snowmobile trail and/or the proposed multi-use trails (see Section 6.8.1.2) if they exist at the time of project construction. Trail corridors in the project vicinity should be reviewed with trail planning agencies as trail design plans are being prepared (closer to project construction) to identify potential impacts and appropriate mitigation measures.

6.9 GEOLOGY/SOILS

6.9.1 Affected Environment

The study area is characterized by a relatively flat outwash plain (formed during the Wisconsin glaciation period, which occurred 75,000 to 12,000 years ago) divided by the Mississippi River Valley. The upper Mississippi River Valley was formed by glacial meltwater flowing to the south. The surrounding outwash plain was formed through the action of streams flowing off retreating glacial ice. Large amounts of glacial sediment were carried with meltwater and deposited as it flowed away from the melting ice. The flowing water reworked and sorted the sediment carrying finer grained sediments such as silt and clay farther away and leaving behind larger grained sand and gravel. Sandy outwash deposits lie below most of the project area. The outwash plain is generally flat with scattered lakes and wetlands formed in depressions formed by glacial tunnel valleys or in depressions once occupied by blocks of ice left by the retreating glacier.

More recent soil formation includes alluvial deposits along streams and rivers such as the Mississippi River floodplain and organic soils in wetland areas. The depth of the unconsolidated deposits in the project area typically ranges from 100 to 200 feet and may be as shallow as 30 feet in the bottom of the river valley. Igneous and metamorphic bedrock, consisting primarily of granite, is present below the unconsolidated deposits, approximately 150 feet below the average outwash plain surface.

Groundwater occurs at depths generally ranging from 20 to 40 feet in the sandy outwash in the project area. Groundwater is present at or near the surface in wetland areas and near lakes. See Section 7.4 for additional details regarding ground water.

Soils in the project area are generally sandy and have low water holding capacity. Organic soils are present in wetland areas. Steep slopes are present only in the bluff areas of the Mississippi River Valley. Sandy and gravelly loam is present on the steep bluffs of all the proposed river crossings. Bluff slope angles range from 12 to 35 percent and these soils are vulnerable to erosion if the vegetation is disturbed.

6.9.2 Environmental Consequences

Each of the Build Alternatives would require excavation in the vicinity of and/or disturbance to steep river bluffs. Disturbances to the vegetative cover that occur during construction could result in erosion of temporarily bare soils. Erosion of the river bluffs is of special concern because eroded sediment could be washed into the Mississippi River.

The bridge approaches for Alternatives A, C and D would intersect with the steep bluff. Construction of these alternatives would require excavation in the east bluff to a depth of approximately 20, eight and 20 feet, respectively. Alternative B would be constructed on existing embankment fill, requiring no bluff cut, but some re-grading of the existing embankment may be required. Access roads and temporary construction disturbance would also occur for each of the alternatives.

Construction of roadways over unstable organic soils requires correction of the soils in the form of compaction or excavation. Organic soils are present in several of the wetlands in each alternative. The approximate area of organic soils in the construction limits for each alternative is shown on Table 6.9.1.

**TABLE 6.9.1
AREA OF ORGANIC SOILS**

Alternative	Approximate Area of Organic Soils in Construction Limits
A	3 acres
B	6 acres
C	6 acres
D	8 acres

The potential for impacts to bedrock and impacts from earthborn vibration has been considered, but due to the nature of the planned work and affected environment (no rock cuts, no blasting, etc.), no impacts are anticipated.

6.9.3 Mitigation

The proposed road profiles have been designed to minimize disturbance to steep bluffs. As the design for a preferred alternative is carried forward, it will be further refined to avoid and minimize impacts to steep slopes and organic soils.

Best management practices (BMPs) such as erosion control blankets, fast growing cover crops and silt fences (similar to those outlined in the MPCA's manual "Protecting Water Quality in Urban Areas") would be implemented in accordance with the National Pollutant Discharge Elimination System (NPDES) permit which is required for the project. After construction is complete, disturbed areas would be re-vegetated to control erosion on a permanent basis.

Correction of organic soils is minimized by avoiding wetland areas as described in Section 7.5. If organic soil correction is needed, methods such as compaction (surcharging) and the use of lightweight fill would be evaluated to minimize disturbance to the soil and surrounding wetlands.

6.10 WILD AND SCENIC RIVERS AND CANOE/BOATING ROUTES

6.10.1 Affected Environment

In 1976 the Mississippi River was designated as a state Wild and Scenic River for the 53-mile length of river from the 10th Street dam in St. Cloud to the western border of the Cities of Anoka and Champlin at the northwest corner of the Twin Cities metropolitan area. Specifically, it is designated as ‘scenic’ from the 10th Street bridge in St. Cloud to the TH 24 bridge in Clearwater and ‘recreational’ from Clearwater downstream to Anoka, based on the amount of development along the Riverway at its time of designation. The Mississippi River is also designated as a state Canoe/Boating Route from St. Cloud to Anoka.

Minnesota Statutes 103F.301-103F.345 (the Minnesota State Wild and Scenic Rivers Act) designates the MnDNR as the agency responsible for preparing the management plan and adopting rules for managing and administering the riverway. This statute also directs other governmental entities to act in a manner consistent with the law and management plans adopted pursuant to the law. Segments of a state-designated river are classified in the statutes as “wild,” “scenic” or “recreational” based on the amount of development existing at the time of designation. State rules aim at providing the greatest protection for “wild” segments, followed in sequence by “scenic” segments, with fewer restrictions on “recreational” segments. The rules specific to the Mississippi River included designation of a riverway management district boundary (see Figure 6.6) and identification of land use regulations (to be adopted and implemented by local governments along the riverway corridor) for the designated ‘scenic’ and ‘recreational’ district designations defined above.

The DNR rules for State Wild and Scenic Rivers address roadways in Chapter 6105, sections 6105.0190 and 6105.0200 and reference the public waters permit requirements of Minnesota Statutes 103G.245. The Wild and Scenic River rules indicate that road authorities should give first consideration to crossings located with or adjacent to existing facilities, such as roads and utilities. This section of the rules was taken into account when developing alternatives for the proposed I-94/TH 10 Interregional Connection, including consideration of Alternative B (located at the existing TH 24 river crossing) and Alternative C (located in the vicinity of the existing crossing, but avoiding downtown Clearwater).

An initial management plan for the Mississippi Scenic Riverway was prepared by the DNR in 1976, followed by adoption of rules for administering the riverway that reflect the goals of the management plan. An updated riverway management plan (*Mississippi Scenic Riverway Management Plan*) was completed by the MnDNR in June 2003 and will be followed by a rules revision process. The 2003 Riverway Management Plan included minor modifications to the riverway district boundary, and some increased flexibility in land use district standards. While the scenic and recreational designations (and protection goals) are unchanged in the 2003 Riverway Management Plan, four new land use districts were proposed in the plan as

FIGURE 6.6

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suggested amendments to the Mississippi Scenic Riverway state rules (Minnesota Rules 6105) and, ultimately, for adoption in local zoning ordinances. The four districts proposed in the 2003 Plan are:

- River town (largely developed communities, often with city services),
- River town expansion (areas adjacent to existing urbanized areas, developed or anticipated to develop in the near future, where urban services are anticipated),
- Rural residential (large-lot single-family residential developments with no urban services), and
- Rural open space (agricultural or forested land uses where non-farm development is very limited).

The locations of the four land use districts within the study area are shown in Figure 6.7.

The criteria or values identified as the basis for establishing this section of the river for inclusion in the state Wild and Scenic Rivers System, as described in the 2003 Riverway Management Plan, include:

- **Historic Values:** The corridor contains many sites that are important to the state's exploration, settlement, and development history.
- **Scenic Values:** The wooded islands, bluffs, and shoreline contain many areas of outstanding scenic value.
- **Recreational Values:** The corridor provides excellent fishing, canoeing, and boating opportunities.
- **Natural/Scientific Values:** The corridor contains areas of native vegetation, rare plant species, and abundant wildlife.

Other sections of this DEIS describe the important existing natural and cultural features in the riverway (e.g., cultural resources; visual quality; and fish, wildlife and vegetation). The *Cumulative Impacts Study for the Mississippi Scenic Riverway* recently completed by Mn/DOT in June 2003, with input from other regulatory agencies, describes potential recreational user impacts of the proposed DEIS Build Alternatives and other potential new bridges in the riverway corridor. Mapping contained in the 2003 *Mississippi Scenic Riverway Management Plan* was also used as the basis for identifying important riverway resources (e.g., historical resources, scenic quality, campsite locations, boat access locations, etc.). Rather than repeat the discussion of resources described in other sections of this DEIS and in other studies, this section will focus on summarizing the potential impacts as they relate to the riverway 'values' described above.

Use of the Mississippi River as a Canoe/Boating Route is affected by factors similar to those described for the recreational values above. Therefore, the discussion of impacts to recreational values in Section 6.10.2 also reflects impacts to the riverway as a state Canoe/Boating Route.

6.10.2 Environmental Consequences

The historic, scenic, recreational and natural/scientific ‘values’ described above will be used to describe changes related to Mississippi Scenic Riverway uses that would result for each of the DEIS alternatives. Table 6.10.1 summarizes the impacts of each alternative on these values. Table 6.10.1 footnotes identify the information sources utilized to assess impacts for each factor. The description of riverway recreational values impacts in the table and in the following sections also reflect impacts to river use as a Canoe/Boating Route.

Since recreational users move throughout the riverway (i.e., not just at the location of proposed DEIS alternatives), the potential cumulative impacts to the riverway from anticipated future development and from other potential river crossings also need to be considered. Chapter 11 assesses these potential cumulative impacts to the Mississippi Scenic Riverway.

6.10.2.1 No-Build Alternative

Since the No-Build Alternative would involve replacement of the existing TH 24 bridge with a similar structure at the existing location within the City of Clearwater, this would result in relatively few impacts to the Mississippi Scenic Riverway or Canoe/Boating Route users compared to Build Alternative impacts. However, depending on how the bridge is reconstructed (i.e., how well construction is contained within the existing corridor), some impacts could occur. The most notable impacts would be on recreational use, since bridge reconstruction would likely require closure of the boat ramp at TH 24/Clearwater during construction. Also, the ‘quality’ of the recreational use in the vicinity of the bridge could be impacted by noise and visual confusion created by construction activities, even if a channel is left open for recreational traffic on the river during construction. These impacts would occur with the No-Build Alternative and as additional impacts to Build Alternatives A, C and D (which include reconstruction of the existing TH 24 bridge).

6.10.2.2 Build Alternative A

Alternative A is located within a new river crossing corridor in an area of high to moderate scenic quality at the downstream end of a relatively long, straight stretch of the river, just above the School Section Islands. This section of the river is within the ‘scenic’ designation and, as a result has relatively low intrusion of development visible in the corridor. This character is likely to continue in the future, since this section of the river is designated in the 2003 Riverway Management Plan as part of the ‘rural open space’ land use district. Construction of a bridge across the riverway at this location would introduce a visually dominant structure across the river that would be visible to recreational users coming downriver for a distance of approximately one mile, within an area that is relatively natural and scenic. This new crossing would also add another traffic noise source location to the riverway, compared to the No-Build or Alternative B scenarios.

The new Alternative A crossing would divide the existing approximately 13-mile segment of the riverway between bridges in the vicinity of the canoe launch in St. Cloud (at river mile 926) to the TH 24 bridge in Clearwater approximately in half (seven miles upstream and six miles downstream from the Alternative A bridge location).

FIGURE 6.7

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TABLE 6.10.1
SUMMARY OF POTENTIAL IMPACTS TO WILD AND SCENIC RIVER VALUES

RIVERWAY VALUES ⁽¹⁾	NO-BUILD	ALTERNATIVE A ⁽¹⁴⁾	ALTERNATIVE B	ALTERNATIVE C ⁽¹⁴⁾	ALTERNATIVE D ⁽¹⁴⁾
Historic					
Known historic resources or events ⁽²⁾	None identified	In vicinity of the eligible Hurre Farmstead and three eligible or potentially eligible pre-contact archaeological sites, located partially within the Riverway management boundary	None identified	None identified	None identified
Scenic					
1976 Scenic/ Recreational designation	Scenic to north, Recreational to south	Scenic	Scenic to north, Recreational to south	Recreational	Recreational
2003 Proposed land use designation ⁽³⁾	Rural open space upstream on north side; rural residential downstream on the north side, and river town in south side (in Clearwater)	Rural open space	Rural open space upstream on north side; rural residential downstream on the north side, and river town in south side (in Clearwater)	Rural residential	Rural open space
Scenic quality rating ⁽⁴⁾	High on north side, moderate on south side	High on north side, moderate/ high on south side	High on north side, moderate on south side	High on north side, moderate on south side	High to very high on north side, high on south side
Upstream visibility	0.75 mile (existing corridor)	1 mile	0.75 mile (existing corridor – larger bridge)	0.5 mile	0.25 mile
Bluff disturbance/cut ⁽⁵⁾	None	20 foot cut at north bluff	None – use existing embankment	8 foot cut at north bluff	20 foot cut at north bluff
Recreational⁽⁶⁾					
Change in bridge spacing on riverway ⁽⁷⁾	No new river crossing corridor. Maintains existing spacing: 13 miles to north, 17 miles to south	New crossing corridor between existing St. Cloud and Clearwater bridges. Closest bridge is 7 miles to north, 6 miles to south	No new river crossing corridor. Maintains existing spacing: 13 miles to north, 17 miles to south	New crossing corridor between existing Clearwater and Monticello bridges. Closest bridge is 1.5 miles to north, 15.5 miles to south	New crossing corridor between existing Clearwater and Monticello bridges. Closest bridge is 8 miles to north, 9 miles to south
Distance to closest riverway canoe campsite ⁽⁸⁾	3 miles upstream to Greenwoods’ Island	3 miles upstream to Grand Island and 2 miles downstream to Greenwoods’ Island	3 miles upstream to Greenwoods’ Island	4 miles upstream to Greenwoods’ Island and 5 miles downstream to Oak Island	0.5 mile upstream to Oak Island
Canoe/boat use disruption	Disruption of use during construction – in vicinity of TH 24/Clearwater boat landing	Disruption of use in project vicinity during construction – between St. Cloud and Clearwater boat landings	Disruption of use during construction – in vicinity of TH 24/Clearwater boat landing	Disruption of use in project vicinity during construction – between Clearwater and Snuffy’s Landing boat landings	Disruption of use in project vicinity during construction – between Clearwater and Snuffy’s Landing boat landings
Canoe/boat access changes	Disruption of TH 24/ Clearwater boat landing use during construction	No impacts to existing boating access points	Disruption of TH 24/ Clearwater boat landing use during construction	No impacts to existing boating access points	Disruption of Snuffy’s Landing boat ramp use during construction
Natural/Scientific					
Fisheries/aquatic life ⁽⁹⁾	No special habitat/ resources identified	Located within and upstream from good fisheries habitat	No special habitat/ resources identified	No special habitat/ resources identified	Located within and upstream from good fisheries habitat
Native plant communities ⁽¹⁰⁾	Bridge reconstruction could impact: Oak woodland at top of north bluff and sedge wet meadow at base of north bluff	None identified in riverway management area	Oak woodland at top of north bluff and sedge wet meadow at base of north bluff	Oak woodland at top of north bluff and floodplain forest in river bottom	None identified in riverway management area
Threatened/ endangered species or species of concern ⁽¹¹⁾	None identified within riverway management area	None identified within riverway management area	None identified within riverway management area	None identified within riverway management area	Bald eagle nest along river approx. 0.25 mile from bridge
Wildlife ⁽¹²⁾	Possible migratory bird nesting impacts during existing bridge reconstruction (also affects all Build Alternatives)	No special riverway wildlife concerns identified	No special riverway wildlife concerns identified	No special riverway wildlife concerns identified	Heron rookery at river in bridge vicinity
Potential erosion/ sedimentation impacts to water quality (bluff cut) ⁽¹³⁾	No substantial cuts anticipated during bridge reconstruction	20 foot cut at north bluff	No substantial cuts anticipated – use existing embankment	8 foot cut at north bluff	20 foot cut at north bluff

⁽¹⁾ All discussions of values relate to the area in the immediate vicinity of the proposed crossing for each alternative, unless otherwise indicated.

⁽²⁾ Based on information in Section 8.2 of this DEIS.

⁽³⁾ Based on Proposed Land Use mapping from the Mississippi Scenic Riverway Management Plan (2003).

⁽⁴⁾ Based on Scenic Quality Rating mapping from the Mississippi Scenic Riverway Management Plan (2003).

⁽⁵⁾ See discussion in Section 6.7 of this DEIS.

⁽⁶⁾ Recreational values also relate to fishing (fisheries) and scenic values summarized in this table.

⁽⁷⁾ See discussion in Section 11.2 of this DEIS.

⁽⁸⁾ Based on Recreation Areas & State-owned Land mapping from the Mississippi Scenic Riverway Management Plan (2003).

⁽⁹⁾ See discussion in Section 6.6 of this DEIS.

⁽¹⁰⁾ See discussion in Section 6.5 of DEIS.

⁽¹¹⁾ See discussion in Section 6.5 of this DEIS.

⁽¹²⁾ See discussion in Section 6.5 of this DEIS.

⁽¹³⁾ See discussion in Section 6.9 of this DEIS.

⁽¹⁴⁾ No-Build impacts (reconstruction of existing TH 24 bridge) would also occur with Alternatives A, C and D, in addition to the new crossing impacts.

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The Alternative A corridor is approximately three miles downstream from the Grand Island campsite and two miles upstream from the Greenwoods' Island campsite. Under some conditions (likely depending on cloud cover, wind speed and direction, etc.), traffic noise and light from the bridge may be noticeable to campers at these sites. Although this alternative does not impact an existing boat launch/access point, construction activities may temporarily disrupt recreational boat use in the project vicinity.

Potential impacts to natural/scientific values of the riverway in the vicinity of Alternative A include direct (river bottom) and indirect (siltation from erosion at the 20 foot bluff cut) impacts to good fisheries habitat during and after construction. Potential riverway historic value considerations include the potential for impacts to the Hurtle Farmstead which is recommended for eligibility on the National Register of Historic Places (NRHP) and three eligible or potentially eligible pre-contact archaeological sites, located within the riverway management boundary (see Section 8.2).

6.10.2.3 Build Alternative B

Alternative B is located at the existing TH 24 crossing within the City of Clearwater, at the dividing line between the 'scenic' and 'recreational' designations of the riverway and within an area of high to moderate scenic quality. Future land use districts (from the 2003 Riverway Management Plan) include 'rural open space' upstream on the east side of the river, 'rural residential' downstream on the east side of the river, and 'river town' on the west side of the river (in Clearwater). These land use districts would likely maintain the existing overall character of the riverway into the future. Construction of a new, larger bridge across the riverway in place of the existing bridge would increase the visual dominance of the bridge structure in this area, but would not create an additional bridge crossing corridor within the riverway. The bridge would be visible to recreational users coming downriver for a distance of approximately 0.75 mile.

The most notable recreation impacts would occur during bridge construction, since the construction would likely require closure of the boat ramp at TH 24/Clearwater. Also, the 'quality' of the recreational use in the vicinity of the bridge could be impacted by noise and visual confusion created by construction activities, even if a channel is left open for recreational traffic on the river during construction.

The visual impacts of the bridge on recreational users of the riverway would not differ significantly from the No-Build bridge impacts, except that the bridge would be wider. The increased traffic volumes on the new bridge would noticeably increase noise levels on the riverway (see Section 6.2), compared to No-Build conditions.

The Alternative B corridor is approximately three miles downstream from the Greenwoods' Island campsite. Under some conditions (likely depending on cloud cover, wind speed and direction, etc.), noise and light from the highway may be perceptible to campers at this location.

Potential impacts to natural/scientific values of the riverway in the vicinity of Alternative B include potential construction-related impacts to two native plant communities (oak woodland at top of north bluff and sedge meadow at north bluff base).

6.10.2.4 Build Alternative C

Alternative C is located in a new river crossing corridor in an area of high to moderate scenic quality, just above Boynton's Island. This section of the river is within the 'recreational' designation approximately 1.5 miles downstream from the existing TH 24 bridge and the City of Clearwater. Some breaks in the forest vegetation in the vicinity of this corridor increase the visual impact of adjacent development, compared to Alternatives A and D, although much of the area has retained vegetative cover along the river banks and bluff. The existing character is likely to continue in the future, since this section of the river is designated in the 2003 Riverway Management Plan as part of the 'rural residential' land use district, which allows large lot development, but minimizes visual impacts by limiting vegetation clearing. Construction of a bridge across the riverway at this location would be visible to recreational users coming downriver for a distance of approximately 0.5 mile.

The Alternative C crossing creates a new river crossing approximately 1.5 miles downstream from the existing TH 24 bridge, with the next bridge structure across the river located at the TH 25 crossing in Monticello, approximately 15 miles downstream. The existing TH 24 and proposed Alternative C bridge intrusions would be relatively close together, allowing for longer distances to the next bridge (TH 25) – compared to Alternatives A and D, that divide currently relatively long stretches of river (13 to 17 miles) approximately in half, creating an 'intrusion' in the middle of an otherwise lengthy 'natural' recreational experience. However, for river users traveling downstream, the close proximity of the TH 24 and Alternative C crossings could result in a perception that noise and visual impacts continue for a relatively long time, compared to noise/visual impacts of a single, isolated crossing.

The Alternative C corridor is located the greatest distance from existing river campsites: approximately four miles downstream from the Greenwoods' campsite (upstream from TH 24) and approximately five miles upstream from the campsite at Oak Island just north of Snuffy's Landing. Therefore, this alternative would likely have the least noise and light impacts on campers of the proposed Build Alternatives. Although this alternative does not impact a boat launch/access point, construction activities may temporarily disrupt recreational boat use in the project vicinity and the 'quality' of the recreational use in the vicinity of the bridge could be impacted by noise and visual confusion created by construction activities, even if a channel is left open for recreational traffic on the river during construction.

Potential impacts to natural/scientific values of the riverway in the vicinity of Alternative C include indirect (siltation from erosion at the 8-foot bluff cut) impacts to the riverway (although no good fisheries habitat areas have been identified in the vicinity) and potential impacts to two native communities (oak woodland at the north bluff and floodplain forest in the river bottom).

6.10.2.5 Build Alternative D

Alternative D is located in a new river crossing corridor in an area of high to very high scenic quality, just above the least developed section of the riverway – the approximately six-mile section of the river abutted by land owned by Xcel Energy. Although this section of the river is within the 'recreational' designation, it has very low intrusion of development visible in the corridor. The stack at the Xcel Energy SHERCO power plant is the only noticeable visual

intrusion in this section of the riverway. The Xcel Energy section of river was identified in the 2003 Riverway Management Plan as having very high scenic quality in many areas. This character is likely to continue in the future, since this section of the river is designated in the 2003 Management Plan as part of the 'rural open space' land use district. Construction of a bridge across the riverway at this location would be visible to recreational users coming downriver for a distance of approximately 0.25 mile, due to the presence of the islands just upstream from the Alternative D corridor.

The Alternative D crossing would divide the existing approximately 17-mile segment of river without bridges (from the TH 24 bridge in Clearwater to the TH 25 bridge in Monticello) approximately in half (eight miles upstream and nine miles downstream from the Alternative D bridge location). This new crossing would also add another traffic noise source location to the riverway, compared to the No-Build or Alternative B scenarios.

The most notable recreation impacts would occur during bridge construction, since the construction would likely require closure of the boat ramp at Snuffy's Landing. Also, the 'quality' of the recreational use in the vicinity of the bridge could be impacted by noise and visual confusion created by construction activities, even if a channel is left open for recreational traffic on the river during construction.

The Alternative D corridor is 0.5 mile downstream from the campsite on Oak Island, across from Snuffy's Landing. Of all the Build Alternatives, this alternative would likely have the most direct noise and light impacts from the highway on riverway campers, compared to existing conditions.

Potential impacts to natural/scientific values of the riverway in the vicinity of Alternative D include direct (river bottom) and indirect (siltation from erosion at the 20-foot bluff cut) impacts to good fisheries habitat during and after construction; the proximity of the crossing to an existing eagle nest (0.25 mile from bridge); and the proximity of a heron rookery in the vicinity of the crossing.

6.10.3 Mitigation

Mitigation of impacts to the Mississippi Scenic Riverway and Canoe/Boating Route includes: 1) consideration of potential impacts to the riverway in selection of the preferred alternative and, 2) incorporating features in to the design of the preferred alternative to further minimize visual impacts to riverway users.

In selection of the preferred alternative, the following should be considered – along with other social, economic and environmental and transportation considerations – in the evaluation of alternatives:

Minimize scenic/recreational impacts:

- Consideration of locating the crossing with or adjacent to existing facilities
- Location in urbanized or urbanizing areas (river town or river town expansion) or as close as possible to previously disturbed areas or areas with existing visual intrusions

- Location away from areas identified as having high, very high or outstanding scenic quality
- Location away from riverway campgrounds
- Location that is less visible for long distances (e.g., for downstream canoe travelers)

Minimize historic and natural/scientific value impacts:

- Location that avoids/minimizes impacts to cultural resources
- Location that avoids/minimizes impacts to fisheries and unique plants/wildlife
- Location that minimizes potential erosion/sedimentation impacts to water quality

Once a preferred alternative has been selected, design of the bridge should incorporate design features that minimize/mitigate visual impacts to riverway users, including:

- Low profile/minimize scale of bridge
- Minimizing vegetation disruption
- Minimizing bluff cuts and other erosion/sedimentation sources
- Incorporation of aesthetic features in bridge design to make it more visually pleasing

Development of the final design for a future bridge across the Mississippi Scenic Riverway and Canoe/Boating Route would include consultation with MnDNR staff, to identify design features that would minimize impacts or enhance the scenic character of the riverway. In addition, bridge approach design could include appropriate landscaping, signage or other roadway enhancements in the vicinity of the riverway.